The Builder.

VOL. XXVII.—No. 1370.

The Exhibition of Architectural Works at the Royal Academy.

GREAT additional interest belongs this year to the Annual Exhibition of Works of Art by the Royal Academy, on account of its change of site. The sense of freshness, order, light, and breathing space experienced on entering the new galleries next Burlington House, contrasted with recollections of a crowded day at Trafalgar Square, creates an immediate impression in favour of the new structure. The galleries, as our readers are aware, are in the rear of this fine old mansion, and are approached by a long temporary covered way from Piccadilly, through the hall of the old house. Mr. Sydney Smirke's work is thus agreeably linked to the associations belonging to Lord Burlington.

The new galleries, of which we have already published the plan,* are in the form of a parallelogram, in which are three suites, ranged side by side,—two of five galleries each on the outer sides, and one of four in the centre, in which latter we find a central octagonal hall with ten *salles* thus arranged round it: a vestibule, a sculpture gallery, and a lecture-hall, forming three arms of the cross shape of the central suites, making fourteen galleries in all. Thus the new vestibule gives access to the octagonal hall devoted to sculpture, beyond which, and in a line with it, is the principal sculpture-room; and opening out of the hall, vestibule and sculpture-room to the right and left, are the picture galleries. The octagon also gives access to the lecture-hall, in which are hung the architectural drawings, engravings, miniatures, and a collection of character sketches made in Egypt by Mr. Goodall.

We must say a few additional words of the decorations. There are niches in the architrave of the octagon, in each of which is a bust of a painter; and on the bold cornice is written in mosaic letters, one line on each side of the eight sides, from one of Spenser's hymns:—

> "The Hearts of men which
> Fondly here admire
> Fair-seeming shows, may
> Lift themselves up higher,
> And learn to love, with
> Zealous humble duty,
> The Eternal Fountain of
> That Heavenly Beauty."

The walls generally are covered with a reddish chocolate paper, with leafy ornament of a similar tone, and are finished with a dado of walnut, with an ebony cornice. The ceilings are coved, and both covings and spandrels glisten with gold, relieved by buff and chocolate and green lines. The architrave and pilasters of the semicircular archways leading from the centre hall, as well as those of the most northern suite of galleries, are of coloured marbles, while the openings of communication between each of the rest of the surrounding suites are square-headed, and the architraves, pilasters, and reveals are of walnut. The largest room, or *Sala Regia*, in which the best pictures by the academicians and associates are hung, has a noble ceiling of the shape Italians call a "*schifo*," lighted by central skylights by day, and star burners suspended by gilt rods by night, the whole being richly ornamented, and then gilt upon a buff ground, relieved by lines of neutral colours. The floors are of polished marqueterie. The galleries are furnished with comfortable sofas, adding to the ease with which this year's display of art works can be examined.

The display in the architectural department is certainly unexpectedly small, and, as hitherto in the vacated halls in Trafalgar-square, architecture has not a department to itself, nor is it so worthily represented as it should be. We learn that part of the architectural drawings were hung in one of the galleries, planned by Mr. Smirke especially for them, but they were, subsequently taken down to make room for the works of painters, and were then lessened in number, and, as they now are, suspended in two divisions on the walls of the lecture-room instead. And here, so few of the architectural designs being accepted, the rest of the room is, as we have said, devoted to the exhibition of miniatures, engravings, and Mr. Goodall's studies. That this lecture-room could never have been intended by Mr. Smirke, moreover, for the exhibition of pictures or drawings of any kind is evident from the fact that a large portion of the works have to be examined sideways from the stepped platform of the gallery, stage by stage, an arrangement so excessively awkward, that narrow escapes from serious fall were taking place the whole time of our visit by the viewers of the drawings, who, absorbed in the examination of the works, forgot they were standing on a series of stepped ledges, instead of on a flat floor, and, moving back, slipped over the steps, and scrambled against falling.

There are fifty-eight frames of architectural drawings. Ten of these are devoted to archæological subjects, and three to continental sketches, leaving but forty-five frames to illustrate the art and progress of architecture of this great country during the past year, and what may not have been shown of it in previous years. Thirteen of the subjects are churches or ecclesiastical work, ten drawings are devoted to town-halls, four to country residences, two to public schools, three to colleges, one to a university, one to a lodge, one to a villa, one to stained glass, one to a monument, one to a ceiling, one to a sailors' home, one rectory, one wall decoration, one only to the Law Courts, one to Temple Bar, and three to Burlington House and the new buildings, those which are now in progress for the accommodation of the Royal, Linnean, and Chemical Societies. The names of the exhibitors include scarcely one provincial or colonial practitioner.

Probably the most important new edifice illustrated in a large fine drawing is the "New Building in course of erection for the University of Glasgow, Gilmore-hill, Glasgow" (977), for it affords a fine opportunity of marking the architectural age and in giving distinctive character to a large building in a part of Great Britain that has a national style peculiarly its own. Mr. G. G. Scott has endeavoured to graft on to his own Edwardian Domestic Gothic style that of the late ancient Scottish Baronial, and we cannot help thinking he fairly fails in the attempt. The form of the building is quadrangular, with towers at the corners, raised a story above the rest of the building, surmounted by high-pitched roofs with "corbie-stepped" gables and conical capped round turrets at the angles; imitations of four Border Pele-towers, in fact, so pierced in their basement with windows as to show the want of solidity, that the style requires to give it due effect. The central tower, with spire, is a fine feature, in which there is little attempt to Scotch baronialism, but in the four angular towers, and in the treatment of the oriels under corbie-stepped gables, and wherever Mr. Scott has attempted (always tentatively), to Scotticise in his design; the massive fierce feudal characteristics of the native style have not been grasped, and the *ensemble* is not dignified. An isolated building, near to the main fabric, which in the absence of a plan we take to be a kitchen, is almost an exact reproduction of the Abbot's Kitchen at Glastonbury. Turning from what is intended to be a sublime design to one that is ridiculous, we see in Mr. E. Turner's "Design for the Improvement of Temple Bar" (966), the latest idea for the disposal of this relic of the City boundaries. Mr. Turner proposes to take down Temple Bar, build a flat four-centered arch across the whole width of the Strand on the same spot, and re-erect the bar, stone for stone, above it! with a gallery on the east side for foot-passengers, and one on the west for communication between the Law Courts and Temple. Thus the bar, in its new position, would be merely a ponderous, useless adjunct, utterly obstructing the view of Fleet-street, and the churches now freely seen.

At (973), we find an "Original Sketch for a Monument to a Friend," by Sir M. D. Wyatt. In a lofty arched recess a female figure reposes upon a sarcophagus, with head raised on pillows, and hands uplifted. From a lofty candelabrum, in the centre of each side, spring festoons, which are held by kneeling angels at the head, and standing cherubs at the feet, the latter bearing a cross between them, and an altar, with surmounting cross, is between the former. The panelled and raised pictorial and sculptured ornamentations are most elaborate, and as rich as, and in the style of, the Raffaelle Loggia in the Vatican. It certainly will be a grand era for architectural art, when such a monument as is here depicted can be erected to "a friend." We take the cost of the execution of such in marble to be, say only 30,000*l.*! nearly equal to the cost of that which we hear Mr. Stevens is at last completing, and will erect in the latter part of this year in St. Paul's Cathedral, as the national monument in memory of the Duke of Wellington, and a drawing or model of which we ought to have seen here.

Mr. G. E. Street, in two characteristic pen-and-ink drawings placed side by side (988, 989), shows two different treatments of church towers and spires,—that for the former, St. Peter's Church, Bournemouth, being a good adaptation of a Northamptonshire steeple, with the spire terminating behind parapets, and pinnacles rising at the corners out of them; and that for the latter, "in course of erection in Toddington Park for the Lord Sudeley," is one with a broach spire of pure Lincolnshire steeple type. There is an absence of that continentalism and mannerism in both these examples which are found in some of Mr. Street's designs. The belfry stages,—always fine features,—are treated differently; in the broach-spire design the two lights are under one arch; in the parapeted-spire subject the belfry lights are under two arches. In the latter the appearance of the tower is much weakened by piercing the first story with very large windows. The fact of the long-talked removal of the Charterhouse Schools is established, on inspection of Mr. P. C. Hardwick's large drawing of the "South-west View of the New Charterhouse Schools, Godalming, Surrey" (983). In this we observe several good and some indifferent features. The tower of entrance has a leaden spire rising from behind parapets. The church, close by and partly de-

* See pp. 105, 106, *ante*.

tached, with nave, aisles, and transepts, has a stone, square spire. Towers at each of the ends of the long wings of the building have square spires, with red-tile coverings. In the absence of a plan the general arrangements cannot well be traced; but we see the great hall is not made sufficiently distinctive. There is a free use of bow-windows, oriels, gabled dormers, octagon chimney-shafts, and a general ruddy, thoroughly old-English tone about the buildings, which are designed in the style of the domestic architecture of the Late Decorated period. What will become of the fittings of the hall of the existing Charterhouse Schools? By Leech's bequest the boys compete every year for a drawing prize by making an interior view of the quaint old place. We hope the old hall will be incorporated in the new building.

Mr. Sydney Smirke shows us an interesting drawing—"The intended Design for the Future Adaptation of Burlington House to the Purposes of the Royal Academy, as approved by her Majesty" (1141). It is an elevation of the entrance front, as proposed to be altered; is in pencil, shaded with Indian ink; bears his signature and date, April, 1867; and is signed by the Queen as "App^{d}., Victoria R." It is proposed, we see, to raise a blind story of niches and statues upon the present façade, facing towards Piccadilly. In Mr. Smirke's drawing the proportions of this addition are fairly in keeping with the architecture beneath it. But turn we now to Messrs. Banks & Barry's drawing (968), showing the same subject, in connexion with their own design, in "The View of Proposed Quadrangle as seen through Entrance Archway in New Front to Piccadilly," and we see how completely the proportions of a building can be spoiled by wrong perspective. Mr. Smirke's altered front is seen in the distance, and the height of the new story is so great that it appears to completely overwhelm the fabric on which it is proposed to be built. There is, too, a discrepancy between Mr. Smirke's and Messrs. Banks & Barry's drawing of the same building: the former shows a round arch arcaded portico at the base of the building; and in the latter it is square-headed. Look at Messrs. Banks & Barry's drawing, too, from the opposite end of the gallery, and Burlington House appears at least a quarter of a mile from the archway in Piccadilly.

Mr. H. Conybeare makes a curious mistake in describing his contribution as a "Romanesque Design for Parish Church at Ryde: interior, looking east" (969),—it is clearly Early Decorated throughout. The seven-light window occupying the whole of the width of the east end has an immense wheel within a wheel in the tracery; the outer one has six quatrefoils and six cinquefoils alternately, and the inner one five cinquefoils. With the exception of the misnomer of the title, and the poverty of size and arrangement of the altar-table, and the hardness and stiffness of the colouring, there are some good points in the design. There is certainly, however, a "Romanesque" design (1013), for it is simply a jumble of the Towers of Andernach on the Rhine, and the apses and octagon lantern of the churches of St. Gereon and the Apostles in Cologne; fortunately, we should say, for the author, his name does not appear in the catalogue. Among the many styles of drawing by which architectural buildings are represented here, some being in pencil, some in pen and ink, some in sepia, others in all the colours of the rainbow, the scratchy pen-and-ink bad imitation of Mr. Street's style by Mr. G. F. Jones is not to be commended. In his chancel of Heworth Church, York (1002), misnamed in the catalogue, the drawing, especially the shading, is so sketchy and scratchy that it materially spoils the effect of the design; the repose of the architectural lines are sacrificed, and in the case of the dark lines in the panels of the roof, what is doubtless meant for decoration looks like iron cross-tie rods quite out of place. This interior should have been coloured, as it is evidently intended to be treated with polychromy, and, *vice versâ*, the exterior view of the same chapel (1014) might have been in pen-and-ink instead of being treated as it is with a startling landscape, under a highly coloured sunset. There is a conscientiously wrought set of designs for the Manchester Town-hall, by Mr. J. O. Scott (967, 978, 996, 1020, 1021),—one which has been illustrated in our pages. Oddly enough, though this unaccepted design is so fully illustrated, the one actually adopted and in course of execution, by Mr. Waterhouse, is only shown by one small external view, also published by us, and a view of a well staircase (986, 999). A polychromatic interior is shown in a minute drawing by Mr. J. D. Wyatt, of the "Interior View of the New Chapel for St. John's College, Cambridge, to be consecrated May 12th, 1869,—G. G. Scott, R.A., architect" (1011). This work, which is said to have cost 50,000*l*., deserves a larger and bolder representation. The colouring is mainly confined to the elaborate wooden groined roof. A band of figures, on a gold ground in niches, passes round the roof, halfway up its sides, and round the 7-sided apse at the same level, the horizontal line being broken at the centre of the apse by a vesica. The ribs are picked in in the manner of the famous groined roof of S. Jacques, at Liége. In a new lodge to public gardens at Boscombe, near Bournemouth, about to be erected (963), and a new villa at the same place (967), Mr. Edis favours a mixture of Old English and Old German domestic architectural treatment, pencilled as well as designed with much delicacy: hip-roofs he admires, gables he ignores. In the case of the villa, the upper story is marked by an ogee shingled covering to the walls, and a string-course; the tallness of the two lower stories is much aggravated by being string-courseless, and by the sudden fall of the ground giving an exaggerated base. It has a weird aspect.

The Law Courts and Thames Embankment question will not be much furthered by Mr. L. de Ville's "sketch showing the general appearance of the Law Courts if erected on the Thames Embankment site" (971). He would make the river frontage look like a vast cotton-mill. Upon a row of 34 arches similar to those on which Somerset House is built (also showing the elevation), he places four stories (Somerset House has three) of uniform rows of windows, 270 in total number, and in the centre a stark-straight chimney-like tower rises stiffly up to a prodigious height, nine stories above the main building,—15 stories high in all. With red bricks, stone quoins, purple slates, and with a modified French Renaissance château Henri Quatre treatment, Mr. T. H. Wyatt plans a mansion now erecting at Brockenhurst, in the New Forest, for Mr. John Morant (970). If the low wing on the left looked less like servant offices brought too prominently in view, or less like an addition made at a subsequent period to the main building, this would be as thoroughly compact a residence, worthy of the name of an English country mansion, as one would hope to see. We wish that Messrs. Banks & Barry's new façade to Piccadilly of the Burlington House new building (972) showed less of a repetition of that of the Board of Trade; twice repeated, we should say, for there is to be a wing of it on each side of the central gateway leading to the quadrangle. The extra tower-like story raised on this central point saves it from the monotony. In their St. Stephen's Church, South Dulwich, as completed (974), the authors show they can tackle Gothic as well as Classic work. There is a Kentish-raggy tone about the drawing. A tower and spire at the north-west corner, a clearstory to the nave with windows all gabled, a lean-to aisle with arcaded triplets, an apsidal chancel with hipped roof, and a gable to the latter end of the apse only; bands of light brown and purple slates, and a deep zig-zag ornamentation of slate from the terro-metallic ridge downwards, are the features, with a careful and handsome treatment. For a "Sailors' Home, Bombay, about to be erected in the Calaba-road, Bombay, from the designs of J. M. Anderson" (985) we see no special provision for climate, or adaptation to native wants. It is certainly verandahed in the two stories, but looks very much like a railway station. Mr. G. G. Scott is about to erect, as we have before now said, a costly parish church for St. Mary Abbot's, Kensington (982), in the Geometric period merging from the Lancet. Mr. Scott confines himself to a reproduction of ancient styles, and he has taken the details of Salisbury Cathedral for the foundation of this design. Among the really practical drawings in the exhibition, Sir M. D. Wyatt sends a detail for a ceiling (980), and Mr. E. W. Godwin one for walls (1012). The former is a large sketch of delicate plaster-work in that Rococo style often met with in mansions a century old, upon buff, blue, mauve, and green grounds. The ceiling is panelled and coved, the walls are green, and, for the want of a little gold relief, the general effect is pale even to sickliness. In the latter the architect takes Mr. H. S. Marks, the painter, into his confidence, and the two conjointly produce some quaint decoration for the walls of Dromore Castle, with a half Pompeian, half Japanese treatment, upon Early Pointed architecture. There is an unusual arrangement in there being no distinction made between either the architecture or decoration for the drawing-room, ante-room, or dining-room. The one Rectory-house exhibited is a most elaborate and costly affair. It has a Flamboyant traceried and crocketed tower and spire. The windows, especially the bow, have tracery in the heads, and cusped transoms. It is in red brick, with stone quoins; situated at Wrexham, Berks; and is altered from the designs of Mr. T. Bury (997). Mr. C. Barry's work shown as the "Interior of New Dulwich College" (1018), is in reality the interior of the hall of the college. It is remarkable for double-coved arrangement of roof; its wide span; for the griffins at the hammer-beam ends; and for a large window at the end.

Mr. Waterhouse is constructing new buildings for Gonville and Caius College, Cambridge, in a curious and somewhat heavy Jacobitish style (975). The view shows two fronts; one next a narrow street of low old gabled houses, in which he introduces square oriels to every student's room on the first floor: he has an oriel at one corner of the building one story high, and at the corresponding corner one three stories high. There is a general appearance of heaviness every way, his oriels and other projections are not sufficiently well corbelled out to relieve them from an appearance of giving way from the weight.

In Mr. Crossland's interior of "St. Stephen's Church, Copley" (1008), everything is massive, appropriate, constructively real, and rightly subdued.

Mr. Law's competitive design for the "New Town-hall, Northampton" (1015), and Mr. Brydone's for "Bolton Town-hall" (995), may be dismissed briefly; they were evidently unsuitable, and therefore not accepted.

Mr. Street's rough pencil view of "Proposed New Examination Schools, at Oxford" (993), is remarkable for a sombre arrangement of narrow lancets to the upper hall, in six bays between buttresses, placed upon a row of large arches with tracery in them, beneath four of which are cusped doorways; this, and his beautifully coloured drawings of the "Palazzo Celsi, and Bridge of S. Bernardo, Venice" (1010), show his continental predilections.

Turn we now to the subjects strictly archæological, exhibited by T. H. Watson, W. W. Deane (979), R. Groom (981), W. Richardson (991), and E. George, "Interior of Cathedral, Soissons" (1000), all of which are more or less painstaking and pictorial; and we close our review of the scanty representation of the national progress in architecture as portrayed in the new galleries of the Royal Academy.

THE FUTURE OF BRICKWORK.

THE recent impulse which has been given to ceramic manufacture, as applicable to architectural purposes, bids fair to effect a notable revolution in domestic building. Brick, the most ancient artificial building material, has been styled "ignoble." If we look at the rough stocks with which many buildings now in course of erection are supplied, the term is not undeserved. As far as our personal knowledge and recollection go, such bricks as we now see made use of in many places that we could name, would have been unsaleable a quarter of a century ago. English brickwork, with some honourable exceptions, is not only ignoble, but daily becoming more and more inartistic. The prevalence of the stucco taste of the Regency, the sham classicality which replaced the honest, plain, well-bonded brickwork of the time of the earlier Georges, and even of preceding reigns, has produced its natural effect on the brickmakers. Anything will do to be smeared over with cement. Quantity and cheapness, instead of excellence of quality, have therefore been aimed at; and although some few places still furnish a sightly, well-squared, well-coloured brick, those advanced works by which London is making its approach to Windsor, supply abundant examples of "ignoble" material.

There can be no doubt that our manufacture of this article has retrograded. Fire-brick, indeed, is produced in our time of a better quality than was considered necessary, or perhaps possible, in days when iron was smelted with wood. But the many curious forms of moulded brick, which are still to be seen in the chimneys and other parts of some of our old country mansions, are things of the past. They have

gone out of date with the chimneys themselves. The demon of economy, or rather the demon of cheap and squalid discomfort, has equal dislike to tall chimneys and to moulded bricks. Compare the walls of some of our Metropolitan railway viaducts with some of those to which the elder inhabitants of London were accustomed to look with satisfaction!

As a protest and a counterpoise against the extreme degradation of a style of building which, when rightly carried out, is not devoid of its own appropriate beauty, we regard with the more satisfaction the introduction of moulded terra cotta, and the application to numerous architectural elements of the same skill, and the same material, that have hitherto been almost exclusively applied to the formation of bricks, of tiles, of drain-pipes, and of chimney-pots. Nor is it just to refer to the subject without some acknowledgment of the impulse which the collection, and the designs, of the South Kensington Museum have given to ceramic art in this country.

Throughout every branch of the manufacture of earthenware may be traced the great natural division of enamelled, and unenamelled, ware. That distinction is even more essential than that which is mainly relied on by writers on the subject, of hard and soft paste. The latter form, dependent primarily upon the character of the material employed, results from the application of a greater or a less degree of heat. But the distinctive character of the former results from the adoption of a second process: a material differing from that which forms the body of the article, is spread over the surface after a first firing, and a second application of heat is required to fuse this new face into a species of glass. In some cases the fusible glaze, or *courante*, is a simple natural product, as in the instance of the true, hard, porcelain of China. Then the body of the article, the "boxes," the Chinese writers on the subject call it, consists of a felspathic earth, the kao-lin, which is entirely infusible, but liable to crack from overheating. The glaze, which the Chinese call the "flesh," and the French call the *courante*, consists of another kind of felspathic earth, of opposite qualities, fusible, and of course not liable to crack by heat.

The most ambitious, if not the earliest, attempt to decorate architectural work by inlaid ceramic ware, is to be found in the *della Robbia* ware of Italy. This earthenware is almost exclusively devoted to architectural purposes; statuettes, and, very rarely, vases, being the only exception, if, indeed, they can be so called. The *della Robbia* ware is enamelled. It is thus entirely independent of the action of the atmosphere, and is applicable to such purposes as the decoration of baths and fountains, or for constant exposure to those violent changes of temperature that would be likely to prove destructive to more porous terra-cotta. The chief uses of this earthenware in architectural decoration have been either heraldic or religious; the arms of a sovereign or of a noble family, being represented, in their true tinctures, in a medallion built into the walls of a palace or *château;* and the representation of some religious scene, generally a *pietá*, a crucifixion, or a Madonna with her infant, being erected behind the altars of churches, or in the way-side chapels, or mere illuminated niches, with which we are so familiar in Italy.

The secret of the *della Robbia* ware, that is to say, of enamelling in high relief, and in bright and various colours, perished with the third generation of the family. *Girolamo della Robbia*, the grandson of *Luca della Robbia*, the inventor of the style, and the nephew of *Andrea*, who made a considerable advance both in the boldness of relief and in the variety of colours, died in France, whither he had been invited by King Francis I. to exercise his craft. He was the last possessor of the secret. The period of the production of this ware is, therefore, limited to little more than a century, Luca having produced his first work in 1438.

The modern French artists, whose skill has reproduced, even with advantage, almost all kinds of ancient ware, have as yet sent to this country but very poor specimens of imitated *della Robbia* ware. The efforts which have been made under the direction of the authorities at South Kensington are highly encouraging in their results. Moulded, coloured, and enamelled earthenware is to be seen forming columns in the refreshment-room at South Kensington. In colour, and in hardness of enamel, the results already attained may be regarded as satisfactory. Boldness of relief is wanting, but it is not in that direction that the efforts of the manufacturers have been bent. There can be little doubt that within a few years the works at Stoke-upon-Trent, and elsewhere, will be able to produce any description of coloured and enamelled earthenware which the architect may desire to use.

With many persons, however, especially in England, neither the glaze nor the vivid colouring of the enamelled ware finds favour. A true terra-cotta, an unglazed material, resembling the finest brick in its texture, but produced in artistic form, is likely, at all events at present, to be more in demand than the more brilliant substance. Even this dead or "*matte*" terra-cotta, however, is divided into two groups. Of course the varieties are many, resulting from the almost infinite variety in the chemical nature of the clay, simple or mixed, that forms the basis of the manufacture. Still the main division between a terra-cotta so hard as to resist the file or the chisel, resembling, indeed, very closely the texture of the old Flemish and German stoneware, and a material which, more like the finest brick, is susceptible of finish by the tool of the workman, cannot be lost sight of. The latter, of course, is susceptible of higher finish, and of effect equal to that of sculptured stone (at a much lower price). The former, though not subjected to any enamelling process, yet forms a sort of skin over its surface in the furnace, and, for external work, promises a greater durability.

These two descriptions of architectural terra-cotta may be advantageously examined and compared at South Kensington. In the Albert Hall, of which we gave a description recently, the latter, or stoneware terra-cotta, is employed. In the buildings which are now in progress for the art schools a softer earthenware is decoratively employed; and the finish and delicacy of the work will strike the student with admiration.

In this promising development in the artistic production of a purely artificial building material, we trace an important step in the secular progress of the builder's art. The general idea of that progress appears to us to be this: it consists in the substitution, first, of the skill of the craftsman for the mere brute force of the piler up of stones; and, subsequently, in the replacement of the manual dexterity of the craftsman by the science of the chemist. Just as smelting made ore available for the purposes to which, in the first instance, virgin metal was applied, and as, in our time, the process of electro-deposit enabled the worker in metal to take so gigantic a stride in advance of even the ablest founder, we conceive that we shall advance from the rude efforts of the earliest masons and pyramid builders, to the chemico-artistic architecture of the future.

The earliest human relics of which we can as yet speak with certitude as to their geological date (although we are as yet unable to attach any astronomical determination to the epoch), intimate the use of caverns for human abode. "Dens and caves of the earth" are spoken of as the natural homes of savage life. To supplement shelter by defence, and to rear enormous stones into a fence to protect the entrance of the cavern, would naturally be the earliest effort of man as a builder, if we consider that his faculties were gradually developed by experience. To protect a hill, instead of a cavern, would have followed, when the already improving intelligence had arrived at the power not only of seeking, but of constructing, a shelter. Whether these earlier steps were, or were not, actually taken, we have yet extant, in many localities, remains of massive walls of rude unwrought stones, so enormous in their size that it is hard to discredit the tradition which designates their upraising as the work of giants. Gigantic strength, to say the least of it, was required for the erection of these rudest Cyclopean walls; while the evidence of skill displayed in their construction is not such as to lead us to suppose that any mechanical aid was made use of to lessen the toil of the builders. After a time, man, or the ancestors of what man now is, learned how to cut stone. In this invention we have probably an indication of the nearly contemporaneous discovery of the use of metal. The Cyclopean walls in which polygonal and partly-dressed stones are used, are thus to a certain extent identified with the earlier part of the Bronze period of the archæologist.

Masonry, thus originated, had its own career, and its own history. The stone-cutter became more and more the master, both of his tools and of his material. He substituted coursed stones for polygonal blocks. In this change of style it is probable that we find an indication of the first commencement of the art of quarrying. No longer contented with the endeavour to utilise stones left on the surface of the ground, or on the scarps of the hills, the builders of the squared megalithic work attacked the rocks themselves, followed out and utilised beds and joints in the natural *strata*, and reproduced them in a mode of construction that still relied for its stability on the weight attendant on enormous bulk.

With coursed megalithic stone we seem to tread on historic ground. It is possible that the next great step may be that of the introduction of metal for bond. The simple juxtaposition of squared stones led to the employment of constructive means of bond, such as mortise and tenon joints, as we find them existing at Stonehenge, and grooved and tongued work, of which we find examples in the Great Pyramid. But, in the time of Solomon, although the use of the lewis was unknown, and projecting pins or blocks were left on the wrought faces of the stones in order to give means of attachment to the ropes that were used for their removal, the practice of dovetailing or mortising the stones themselves appears to have yielded to that of introducing metal ties or dowels. The discovery of lime cement, whenever that great chemical stride was taken, was destined to revolutionize masonry. When once it became known to the builder that he could produce an artificial substance, which, in the course of time, would harden into something like stone itself, and would thus bind together the separate elements of his work, the day of megalithic structure was passed. It could only be for the purposes of architectural splendour, or for the military reason of offering a more substantial resistance to the blow of the battering-ram, that walls were built of enormous stones, after the use of mortar had become established.

In these distinct steps, then, are to be traced the divisions of the pre-historic periods of masonry. First, the piling up of rocks; then the orderly arrangement of large unwrought stones; thirdly, the partial working, which produced polygonal megalithic work; fourthly, coursed cyclopean masonry; fifthly, grooved, dovetailed, or tenoned structure; sixthly, metal bond; and, seventhly, the general employment of mortar. Much service will be done to the history of architecture by the investigation of the existing ruins, in which traces of this gradual development of the art of the mason down to a period some 3,000 years back, are still to be detected.

We must not suppose that the transition from one style to another was abrupt, or that exact chronological value can as yet be assigned to structural characteristics. Thus, in one of the most ancient buildings of which the exact date is known, we find not only that mortar has been employed in the bulk of the ordinary masonry, but that cement of great excellence of composition has been spread between the joints and beds of large stones, so exactly wrought that the blade of a penknife cannot be introduced between the blocks. The granite masonry of the chambers of the Great Pyramid is as minutely and carefully finished as is the marble and limestone ashlar within the ducal mansion of Chatsworth. If we consider the difference of the material employed, we shall find that the work of the masons of the Memphite king Sonphis, 5,300 years ago, was as finished as, as well as no less colossal than, that of the masons of the Jewish king Solomon, 1,450 years later.

With the introduction of cement, the size of the blocks used in building naturally diminished. Reduction of size is not confined to stonework. The same diminution may be observed to coincide with the decreasing antiquity of brickwork. The bricks of the earlier Assyrian kings are larger than those of the later monarchs. In the brick pyramid single blocks of this artificial material have been measured of the dimensions of ·525 mètre and ·315 mètre, or 20½ in. and 12¾ in. The small size of the Roman bricks contrasts distinctly with that of the more ponderous masses of the earlier builders.

The attempt to produce an artificial, homogeneous structure may be traced in various forms of work, some deserving of the admiration of the engineer, some being decidedly retrograde steps in the art of the builder. In countries where small stones are plentifully found, to the exclusion of large masses, as, for example, in chalk districts, where flints abound, a neatly-fitted rubble work of the natural material, built in a good lime cement, and protected at the

angles, or occasionally bonded, with courses of wrought stone, is an admirable style of work. With this may be contrasted an oolitic rubble, held together with grout. In our modern inferior work the use of what is called Roman or Portland cement, spread over the face of an ill-built wall, of rubble or of ill-shaped bricks, may be referred to as at once an instance of base and ignoble treatment of structure, and of the attempt to diminish skilled labour by chemical application.

A yet more striking instance of this tendency may be observed in the employment of concrete. In the first and simplest mode of applying this material, when a solid and widespread foundation is provided by its use, the builder has a great resource. In submarine works the employment of concrete made with hydraulic lime has been highly successful. More recently houses have been erected altogether of concrete. The sands of Egypt are being bound into large blocks of artificial stone by the enterprising constructor of the Suez Canal. To such a degree of excellence has the manufacture of artificial stone now attained in our own country, that its durability is considered to be superior to that of almost any natural substance.

In each of these different expedients to dispense with the simple form of squared and jointed masonry we trace an attempt to proceed in the same direction. Whether we regard the rough walls plastered with cement, the concrete house, the brick building with moulded enrichments, or covered with glazed tiles, we find the effort to make science supply the place of skill, and to supplement the labour of the craftsman, by the simpler process of the chemist. When we see how far nature is yet in advance of her most faithful minister and closest imitator, we may believe that we are only on the threshold of discovery in this field. If we compare a dome formed by nature—such, for example, as the egg of an ostrich—with one built by man, such as the vault of the Pantheon at Paris, or the unrivalled ceiling of King's College Chapel, at Cambridge, we see how far the chemical process excells that which is mechanical. It may be urged that we refer to the proceedings of vital and organic chemistry; but, although produced within a living being, the structure of the shell of the ostrich is mineral and inorganic. The shell of the oyster and that of the snail are external deposits, and the liquor contained in the gland of the latter animal has been successfully used as a cement, to repair broken *camei, intaglii*, and other objects of art. In these chemically produced structures, homes and houses as they are for lower and more defenceless forms of life, we find not only perfect adaptation of form, the contour of the unyielding substance being determined by the requirements of the soft cellular tissue, but extraordinary economy of material. The shell of the oyster or of the mussel may be thought a rude object when compared with the shadowy grandeur of such an edifice as the Cathedral of Milan. But if the great Italian architects had been able to dispose of their material with the economy with which the poor mollusk has been taught to construct his home, what sort of temples would have glorified the abodes of civilisation!

It is, as we might naturally suppose, in Italy that the greatest advance has been made in the chemistry of building. The lime cements, the fine concrete formed with volcanic *lapilli*, the scagliola, and the material used for preparing walls to receive fresco painting, assume, in the hands of the practised masons of that country, a beauty and a strength to which we are altogether strangers in England, as applied, at least, to any ordinary work. The most remarkable example of the manner in which homogeneous and durable structure is produced from materials which are brought together in the form of fine gravel, sand, and lime is that of the beaten floors which are common throughout the Peninsula. In the Italian palaces, which are built not for years, but for centuries, the most luxurious and expensive floor, for a large apartment, is of marble. In the summer the coolness is most refreshing, and in the winter a thick carpet is spread over the polished surface. But the next highly prized is the beaten floor. This is made of a species of very fine concrete, composed partly of volcanic pebbles, and it is incessantly beaten by a gang of men for two days or a fortnight, as it dries and solidifies. The result is a smooth and level surface, finer than any stone except marble, and often to receive the work of the colourist. Designs of pavement or of carpeting are painted on these floors, and their excellence is undeniable. A homogeneous floor of this nature, in which chemical change is accompanied by patient labour, is perhaps the nearest approach yet made by the art of the builder to the processes of that vital chemistry by which the strongest, the lightest, and the most elegant, of the habitations of the animals that dwell on the surface of the earth, have been constructed under the guidance of the Great Architect of the Universe.

In the highest effort of the art of the mason, the chemical action of lime appears to designate the course of improvement. In the plastic art of the ceramic builder, chemistry acts by the agency of fire. It may be, that in either case, we are yet young in the science of the builder.

SOCIETY OF PAINTERS IN WATER-COLOURS.

THIS year's — the 65th exhibition of the Society of Painters in Water-colours—is likely to be more than ordinarily attractive, from the numerous large drawings it contains. The members appear to have been actuated by a general desire to make it particularly conspicuous and distinct among the several water-colour exhibitions of the season; or, perhaps, to refute the supposition that two displays in the course of the year must necessarily occasion a rather exhaustive tax on the energies of the same exhibitors—and evidence to that effect might sometimes have been adduced here as elsewhere. However to be accounted for, they have provided for this summer's show ample contrast to mark the difference between it and a collection of sketches and studies. Diversity has some share in creating more than the usual interest; and if there be no more than ordinary proof of the excellence attained by the leading members even in the extra size of their works, others have manifested a laudable desire to emulate them in supporting the character of the institution.

The largest drawing is contributed by Mr. Birket Foster,—a combination of landscape and figures; village children for the more prominent, watching "The Meet" (75), very brilliantly and deftly described. The expanse of country under a splendid sky; the fresh, clean-looking fox-hounds, scarlet-coated huntsman, and the healthy rustic boys and girls variously clad in the striped cotton draperies and qualified-coloured clothes that Mr. Foster's peasant children always wear and look so well in; the precisely drawn tree trunks, crisp foliage, herbage, dried ferns, and the like—all brought together with such tact and skill as few possess in common with him—have conduced to a very successful and pleasant result. But with all the admiration due to such an evidence of power and knowledge, there is the want of some of the better qualities that distinguish the smaller productions of the painter; the charm of refinement that so greatly helps to make the simplest objects matters of interest; and the difference is sufficiently marked in comparison with a delightful little bit entitled "A Breakwater" (240); or again when the "Village Children" (274) are more poetically treated; or where a quiet evening effect enables him to show his appreciation of rich subdued colour, if it be but "A Mill Pool" (266) that reflects it.

Precedence, by right, belongs to those whose practice indicates a more exalted application of artistic ability; but Mr. Foster's picture is undoubtedly the leading feature of the present collection, by reason of its forcible appeal to popular taste.

More rich and rare are the gifts and acquirements necessary to the proper enunciation of Mr. F. W. Burton's conception of "Cassandra Fedele" (20): the figure of a Muse, with appropriate attributes, and invested with the grace that refined feeling helped by such advantages as academic proficiency always secures. Though announced to be unfinished, it has an appearance of completeness,—a fitness of everything introduced,—that associates it with old rather than modern art: it might be the labour of love of some Venetian master. And for the matter of that, so might be Mr. E. Burne Jones's representation of a loosely-clad nymph drugging "The Wine of Circe" (197), but of one who idealizes the possessor of quite another idiosyncrasy. For fine colour this is one of Mr. Jones's best examples; the lady is sufficiently beautiful to look no better than she is, and is known to be, perhaps, by the black panthers—who do duty for the classic tame lions and wolves—in this large and clever drawing. "A Lament" (43), by the same, though it might be something very fresh from Pompeii, has peculiarity if not originality, and a singular gracefulness to recommend it, even though it emulates immature art.

The rapidity and ease with which Mr. John Gilbert appears to get through any amount of work he may undertake are just as manifest in his pictures as in the thousands of woodcut illustrations with which he has whilom delighted his admirers. Whether Shakespearean illustrations like "Joan of Arc contemplating the Dead Bodies of John Talbot and his Son"—from King Henry VI., Part I., Act IV., Scene 7 (30)—with the heroine, who looks more addicted to fighting than Mr. Corbould's milder impersonation, seated on her white charger, and surrounded by mounted and dismounted, armed and disarmed warriors; or "Lear and Cordelia" (121), with splendid British draperies for themselves, picturesque accoutrements for their captors, in addition to characteristic heads and stalwart figures; or in the grey-toned funeral procession, "The Burial of Ophelia" (113)), with a brilliantly attired Horatio in juxtaposition to the deep rich black of Hamlet; or in the subject from Gil Blas, including the renowned Doctor Sangrado visiting a doomed patient (234); and "The Introduction" (259), that might be from Gil Blas as well, with its tapestry background and showy costumes, all bespeak their author by the same bold, facile execution that has become as autographic now as any other signature could be to the capital light-and-shadow arrangement of any one of the subjects.

A little boy relating to his smaller sister "The Story of a Suit of Armour" (278) is one of the artist's most agreeable if less important productions; but objection may be taken to an over-prevalence of grey at the expense of brighter, warmer, and more natural-looking light in this case as in others.

For splendour of colour as much as for vigorous use of it, few can compete with Mr. Carl Haag. His portrait of "Kaheen Amran," the high priest of the Samaritan community at Nablous, reading the Pentateuch (131), is exemplary of the resources of the medium, and proof enough of its sufficiency to meet the requirements of general representation, even if a life-sized head of "A Dragoman" (78) were not a corroboration of the superlative merits water-colour can boast; and an artistic rendering of "The Acropolis of Athens," as seen from the monument of Philopappus, shows to what an extent this sense of colour can idealize even stones, and make them consonant with their inherent interest. Mr. F. W. Topham's Spanish group preparing decorations on "The Eve of the Festa" (151), and a handsome spinster surrounded by sheep in "A Pastoral" (12), are both prominent on other account than their size: they are very beautiful in tone. Mr. J. D. Watson's bevy of lively damsels "Carrying in the Peacock" (161), to grace some feast in old chivalric times, are cleverly drawn and painted in their quaint fifteenth-century costume, and betoken him to be of those from whom great things might be expected. The work has much of the clear brightness of a fresco that fits it admirably for mural decoration, the purpose for which it was designed. An interior of "A Smithy" (27), with a gaily-clad, thirsty smith draining the last drops of ale from a tankard; and another interior, "The Family Pew," with an occupant whose draught has been from the metaphorical cup of sorrow, for she is in mourning and alone, are conspicuous for merit.

(142) "A Hunting Morning: Passing the Gipsy Tents," is Mr. F. Tayler's most important contribution; though two smaller examples,—(236) "In the New Forest," with some ponies that have stood still to be taken, for a wonder, and "A Good Scenting Day" (244), that behoves the huntsman make the most of it, and not to mind small spills,—he is pulling his horse out of a ditch,—are not of less value for being so small, for they are thoroughly indicative of Mr. Tayler's admirable style. Mr. T. R. Lamont has found inspiration in an old ballad telling how "Glasgerion" (170) was so good a harper as to harp himself into the favour, not only of the king and his nobles, but, by changing his tune, into the graces of the monarch's one fair daughter likewise. He is represented here as having "harpit them a' asleep.

> "A' except the young princess,
> Whom love did waking keep.
> And first he has harpit a grave tune,
> And syne he has harpit a gay,
> And mony's the sigh and the loving word
> That pass'd atween them twae."

Whilst papa and his courtiers are being gently nursed in the arms of Morpheus; and the jester lies cuddled up close to the hearth, whence proceeds the only light that illumines the ardent pair of lovers, and the bright pair of red legs of the clown, that are made by it a rather obtrusive feature in the composition, a very effective one, as having afforded Mr. Lamont an opportunity of showing great technical skill; it also evidences originality in dealing with, and research in finding, new subjects whereon to employ it.

Mr. H. Brittan Willis is pre-eminent in the treatment of cattle and landscape: his most important contribution is one of these combinations (112), "Early Morning on the Snowdon Range," with a very successful imitation of natural effect.

Mr. Bradley, with far less aptitude for giving picturesque value to his drawings, exhibits the exceptional power of suggesting life-likeness and action. His "Wild Cattle of Chillingham Park," with bulls about to fight (182); "Oxen Ploughing on the Sussex Downs" (196), and "The Chiddingfold Foxhounds in Full Cry, Surrey" (198), are portrayed with astonishing vigour and apparent anatomical knowledge, and on a scale too large to admit of a doubt. Mr. Basil Bradley's works help to give variety to the collection, as does Mr. G. Rosenberg's carefully-studied dead swan—"The Angler's Vengeance" (210).

Mr. Holman Hunt, who has lately joined the society, sends two finished studies,—"Moonlight at Salerno" (255), with a curious effect produced by the last ray of sunset-colour tinging the horizon with its reflection; and the "Interior of the Cathedral at Salerno" (263). Mr. G. J. Pinwell, another new associate, in addition to a couple of quaint illustrations from Mr. Browning's "Pied Piper of Hamlin" (260), and (282), has a very choice drawing of some such group as may be frequently discerned on "A Seat in St. James's Park" (297). The itinerant musician counting her scanty gains; the poor gentleman, born to disappointment, whose life has been a gradual decline from what he was to what he is, with no other reflection for consolation but the one—that in great measure he has to thank himself for it; the captivating lifeguardsman and the captivated life-guardian of perambulatory and toddling treasures of a fatuous mamma, who thinks Jane has no followers, and children, the least foolish of the party, since they have not arrived at that age when the foolish think themselves wise,—are some of the individualities the artist has depicted with some approach to the delicate but precise finish of Mr. J. F. Lewis. Mr. E. K. Johnson's graceful and lady-like girl contemplating "The Burnt Letter" (300) is charming in her unobtrusiveness; a delightful little drawing, though in very opaque body-colour.

Mr. Jos. J. Jenkins devotes himself entirely to landscape now; and with him we will leave the figures for the present, though they are so much more easily talked of and praised or blamed than trees and stones and limpid brooks, rocks or the Rhine, mountains or Murray-described foreign experience of what may be found in any town all the world over. One need not travel very far to see such scenes as, for the most part, Mr. Jenkins transcribes, such as that under the influence of "Starlight" (9), or when, in some earlier of the twenty-four hours, "Sketching on the Thames" (109), "The Quiet Mill-race," (127); or, leaving the banks of the river, he finds material for his dissertation in rustic bridges, hedged fields, and the like, introducing a flock of sheep "Scared" (286) for incident, to lend point to his capital means of representation that one must needs be very obtuse not to acknowledge.

Mr. Alfred W. Hunt has concentrated his talents and attention to the production of one large and very great drawing, "Loch Cornisk" (155), with giant rocks "at random thrown,"—a masterpiece of workmanship. Mr. E. Duncan sends an exposition of his special supremacy in painting stormy seas and skies in (26) "St. Abb's Head, coast of Haddington;" Mr. G. Dodgson, several admirable examples, notably (148) "Woods at Evening;" Mr. J. Holland, amongst others, a gorgeous view of "Geneva, looking South-east" (126), and drawings that vie with those of Mr. E. A. Goodall in making Venice most Venetian and beautiful; and Messrs. George Fripp, C. Davidson, A. Glennie, W. and J. Callow, P. J. Naftel, Collingwood Smith, G. H. Andrews, Francis Powell, C. Branwhite, T. Danby, A. P. Newton, T. M. Richardson, S. P. Jackson, and J. W. Whittaker, all contribute excellent examples of their several styles.

THE PUBLIC HEALTH IN THE FIRST THREE MONTHS OF 1869.

THE influence of temperature upon the public health during the winter is so direct and so marked that it is somewhat difficult to institute useful comparison between the death-rates in the first three months of any year with those prevailing in the same period of other years. Nor will the mean temperature of the quarters afford us much assistance, as two or three weeks of frost may be followed by a longer period of warm weather, and thus raise the mean to about the average, whereas the effect of the frost upon the death-rate will not be neutralized. A continuance of frost tells with deadly effect upon the young and old of all classes, but with varying effect. In communities, as in individuals, however, the ratio of the effect of temperature upon health depends very largely upon their sanitary and physical condition. This varying proportion affords valuable information for the consideration of the relative health standards prevailing in different towns and countries.

As it may be said that there was during January, February, and March of this year an immunity from frost, we might fairly have expected to find that the death-rate in England and Wales in those three months had been considerably below the average. The cold winds and low temperature of March, however—more especially coming as they did at the close of an unusually mild winter—so raised the fatality from inflammatory diseases of the respiratory organs, as almost to counterbalance the low death-rates of the previous two months. The Registrar-General tells us in his quarterly return, just issued, that in England and Wales the annual death-rate during the first quarter of this year was 24·8 per 1,000. This average rate in the corresponding quarter of the ten previous years was 25·4. The rate last quarter was 2·5 per 1,000 above that which prevailed in the same three months of last year, but showed a marked decline upon those which ruled in the same periods of the five years 1863-67.

The effect of the steady diffusion of sanitary intelligence which has taken place in recent years should appear in a nearer approach of the town death-rates to those enjoyed by the inhabitants of the country. It appears that during last quarter the rate of mortality in the country districts of England was 22·6, while in town districts it was 26·6; thus showing a difference of mortality so great as 4 per 1,000. In the March quarters of the ten years, 1859-68, this difference averaged 4·2, and varied between 7·2 in 1867, and 2·9 in 1859. It would be too much to expect that sanitary efforts alone will bridge over this chasm by lowering the town death-rates more nearly to a level with those of rural districts. We must look to the practical application of Social Science, and perhaps more than all to the labours of the school-master to help forward this great work.

In the 14 large towns of the United Kingdom furnishing weekly returns, the average death-rate last quarter was 27·7 per 1,000, against 30·5, 28·9, and 25·4 in the corresponding quarters of the three years 1866-8. Arranged in the order of their death-rates last quarter, from the lowest, they were as follow:—

	Annual death-rates per 1,000 in the first three months of		
	1869.	1868.	1867.
Birmingham	20·7	24·2	25·4
London	25·4	23·3	26·8
Hull	26·3	22·1	22·7
Bristol	26·6	25·6	25·5
Bradford	26·9	22·0	28·6
Leeds	27·5	23 0	28·3
Salford	27·8	28·2	31·4
Dublin	29·1	29·8	34·6
Sheffield	29·4	23·4	27·3
Liverpool	29·6	30·0	33·3
Newcastle	30·4	25·8	37·1
Manchester	31·0	31·3	33·8
Edinburgh	33·0	28·0	29·5
Glasgow	40·1	30·2	33·6

Apart from the increase of deaths last quarter from the fatal prevalence of bronchitis and pneumonia, which was more or less shared by all the towns, and, indeed, throughout Great Britain and Ireland, the mortality in the above towns was disturbed by a varying proportion of deaths from zymotic causes. Birmingham, which heads the list, enjoyed all but an immunity from this class of diseases, excepting the prevalence of scarlatina in some parts of the town. Scarlatina, indeed, may be said to have been very generally epidemic. In London, for instance, 648 deaths were referred to this disease in the three months, against 339 and 368 in the corresponding quarters of 1867-8. In Manchester and Salford it was still more fatal, the 494 deaths in Hulme township alone, including sixty-four deaths from the disease; in the city and borough over 200 fatal cases of scarlatina were returned, and in some measure accounted for their excessive death-rate. Small-pox was again fatal in Sheffield, vaccination being still neglected. Typhus continued epidemic in Liverpool throughout the quarter, but to a far less fatal extent than in former visitations of the disease in that town. As some set-off against the low position occupied in the above list by two such important towns as Liverpool and Manchester, it is satisfactory to observe that the death-rate in each during last quarter showed a further slight decrease upon the declining rates of recent years. In Liverpool, for instance, the death-rate in the first quarter of the four years 1866-9 has been successively 45·9, 33·3, 30·0, and 29·6. This, in the face of the general increase in 1869 upon 1868, shows a favourable result for the sanitary activity in Liverpool during the past few years under the able direction of Dr. Trench.

The Registrar-General shows that in 46 other large English towns the death-rate last quarter was 24·6, or more than one per 1,000 lower than in the 14 largest towns above mentioned. The rate was remarkably low in Brighton, Southampton, Plymouth, Chester, Coventry, Birkenhead, and Swansea; while an excessive rate was shown in Exeter, Macclesfield, Wigan, Rochdale, Blackburn, and Preston. The excess in nearly all these towns was in a great measure due to the fatal prevalence of zymotic diseases.

The dwellers in London may well be satisfied with the health of the metropolis during last quarter. Of the 14 largest towns, only Birmingham enjoyed a lower death-rate. If London is the ugliest city in the world, it is no small consolation to know that it is now about the healthiest. In Berlin last quarter the annual death-rate was 34·2, and in Vienna 33·2 per 1,000, against the 25·4 which prevailed in London. Typhus was very fatally prevalent during the past three months in Berlin, Brussels, and several other continental cities. London has almost subdued this disease in its worst and most virulent type.

Space will not allow us to dwell upon other and interesting features in the Registrar-General's last quarterly return. He tells us, however, that the births in England and Wales exceeded by nearly 8,000 those registered in any previous winter quarter on record, and that the excess of births over deaths was over 70,000 in the 90 days.

The natural increase in the population of the country during the quarter by excess of births over deaths, was disturbed by the continual outflow of emigrants. Of the 30,275 persons who left the ports of the United Kingdom in the first three months of 1869, 11,110 were English and 9,800 Irish; the latter showing a decrease on the first quarter of 1868, while the total number of emigrants had increased.

The effect of the stagnation in the nation's commerce, dating from the commercial crisis of 1866, continues to be apparent in the marriage rate: 17·7 per 1,000 persons were married in 1866, 16·7 in 1867, and only 16·3 in 1868, a lower rate than in any year since 1861.

CONVERSAZIONE OF THE ARCHITECTURAL EXHIBITION SOCIETY.

THE nineteenth annual exhibition of this society was opened on Tuesday evening with a *conversazione*, at the galleries in Conduit-street, and with considerable *éclat*. For three hours a stream of visitors paraded, the rooms, admiring the numerous collection and subjects on the well-lined walls. Many members of the profession, accompanied by ladies, were amongst the guests, Mr. James Fergusson, the president, receiving them. The *conversazione* was varied this year by the omission altogether of the usual addresses from the president and members. The omission, however, was supplied by the performance of a band of musicians, placed, in the absence of a music gallery, at a table in the centre of the great gallery.

The whole suites of galleries was opened on this occasion, and is devoted in this manner:—The west or first gallery exclusively to a series of 294 coloured sketches, partly Continental and partly of subjects taken from various places in Great Britain, by the late Rev. J. L. Petit, M.A., F.S.A., all framed uniformly in size; the great gallery to the architectural collection, in a

recess of which is an exhibition of Dr. Salviati's Venetian glass; and the uppermost suite to the models and designs of constructive and building appliances. Want of space prevents us this week from going into a detailed examination of the several works, and we shall therefore content ourselves for the present with a few general remarks upon the whole collection. The works of the late Mr. Petit are astonishing for their number and characteristic treatment; his rapidity of sketching must have been surprising, for his sisters, who have obligingly lent this collection, possess, we learn, some 15,000 drawings by the same hand that is now still. We regret that the Council have not arranged these 294 subjects in a chronological form, so as to mark the periods of his unique style. None of the drawings being dated, they are placed, accordingly, in a jumbled and confused form.

As to the architectural collection proper, the extraordinary treatment which architects have received at the Royal Academy, has been the means of preventing the exhibition of the best specimens of their works in either place. Led by the promises held out to the profession, of ample space and special provision for their designs, some hundreds were sent to the Royal Academy instead of to the Architectural Exhibition; the rejection, at the last moment at the former place of so many works, precluded the exhibition of them at either, and so between the two stools the architects this year have, to a considerable extent, fallen to the ground. There are, nevertheless, in all, in this collection, 295 frames of subjects, exclusive of the 294 sketches: 58 of these are views of ancient Continental buildings, and 7 of English antiquities; there are 33 examples of English country residences and villas, and one Irish. Ecclesiastical architecture is represented by designs and drawings of 57 churches and chapels in or for England, 2 for Scotland, and 2 in Wales. For schools there are 17 specimens; for sick asylums, 2; infirmaries, 3; small-pox hospital, 1; fever hospital, 1; and lunatic asylums, 5. For educational buildings on a large scale, there are for a college and a university 1 each; and for establishments dealing with crime, 1 for assize courts and 1 for police and sessions house. Of town-halls there are 9; business premises, 11; and corn exchanges, 3. For banks, markets, flour-mills, monuments, workhouses, stables, hotels, boat-houses, railway stations, bridges, rectories, hunting and other lodges, almshouses, road-side inns, and club-houses, there are isolated illustrations, mainly 1 of each. Of the details of the respective buildings represented there are 27 drawings, showing fonts, sculpture, a reredos, a sacrarium, porches, windows, dados, and staircase. From the 295 illustrations, we further ascertain the fact that 133, or less than half the total only, are of buildings executed or in progress.

ON THE DUTIES OF AN ARCHITECT WITH REFERENCE TO THE ARRANGEMENT AND CONSTRUCTION OF A BUILDING.

AFTER a paper on this subject by Mr. T. R. Smith, at the Society of Arts last week, a discussion ensued, in the course of which

Professor Kerr said, the impression left upon his mind was that it was a most unwise thing to be one's own architect; he did not know whether the main intention of the writer was to impress this upon the public mind, but he had certainly mentioned a list of dangers to be apprehended from the non-employment of an architect enough to frighten any one. The typical English gentleman, however, was usually determined to act as his own architect as far as he could, as he believed he knew his own requirements much better than any one else, and he (Professor Kerr) believed it to be the professional architect's duty to carry out his client's wishes to the best of his ability. He looked upon the architect as a practical man, and not at all as a sentimental person; his sentimental days were gone long ago, and he hoped they would never return. The architect was the servant of the public, employed for the purpose of doing that which they were not able thoroughly to do for themselves, viz., to design and scientifically arrange a building, so that it should be perfect in all its parts, so that all the refinements of the age might be duly provided for. When this was properly done he considered that a great deal more than 5 per cent. additional value was conferred upon the building. If the architect were an unskilful man, which might sometimes happen, the case was different; but he was glad to say, for the credit of the profession in England at the present moment, that he knew of no profession in which there were fewer incompetent men, or where a man did more work for less money. Under these circumstances he fully appreciated the effort which Mr. Smith had made to impress upon his audience the importance of the architect's functions. With regard to the degree in which the owner of a house might be allowed to exercise his own fancy in the design, his (Professor Kerr's) opinion was that an intelligent client was entitled, within the limits which no English gentleman was likely to transgress, to dictate to his architect the conditions under which he chose to live; and a skilful architect would fulfil these conditions as perfectly as possible. He was bound to say that he had had clients whose assistance had been of the greatest possible service, and he knew of no greater gratification on the part of a professional man than to feel that he had honestly fulfilled the wishes of his client, and that by the exercise of his own skill he had accomplished that which a less careful man would have pooh-poohed as an impossibility. The lecturer, he was glad to see, had not followed the general rule according to which architects were spoken of in England. Their functions were generally divided into practical and artistic, the latter being considered by far the most important. This he considered a great mistake. He believed that it was, generally speaking, the truth that an architect, at any rate in his calmer moods, considered himself simply as the servant of the public, and it was a mistake to suppose that he wished to force his own principles of treatment on the public against their wish. That which had led architects to produce public buildings which had ultimately gone out of fashion, to say nothing more, was the pressure put upon them by *dilettanti* and others, who, with the best intentions, were not always possessed of that information which enabled them to give judicious advice. If architects, as a body, were more consulted on questions of public architectural art, architecture would not become more outrageous than it had been, but less so. Unless architects were encouraged in the other direction, he believed they would be induced to follow the dictates of common sense, and to remember that, after all, the English character was averse to any excess of display, either in ornament or anything else, and that the first condition of a good building should be that it fulfilled all its internal functions thoroughly and completely, and that any elaborate ornamentation was altogether a secondary consideration.

Mr. C. F. Hayward said, although he quite saw the wisdom of the course which had been adopted, he could not help regretting that the artistic portion of the subject had not been more touched upon. He could not at all agree with Professor Kerr that the time was gone by for sentiment with regard to architecture, and he should much regret if sentiment were entirely to leave him when designing a building. When troubles came, as they would come—troubles connected with contracts, with workmen, with clients, or with other professional matters—he could not help feeling that it would be a most disagreeable task to go on with the building if there were no sentiment connected with it. He would put it to any gentleman present not connected with the profession, if it would be possible to build a granary or factory in the same spirit as such a building as had been brought under their notice in the paper, a gentleman's country house. He must say that, independently of any question of remuneration, it was a great pleasure to an architect to build a good house for a good client, and he believed that was one of the reasons why an English country gentleman was so anxious to interfere with the arrangements of his building; he felt the influence of sentiment, and desired for the time being to be himself an architect, and could scarcely refrain from interfering, although he might know that he would do so to his own cost. It would be evident to any one that, whatever an architect was, he was a working man; and that in the present day was a very honourable term. Even if his own hands took no part in the work, still his mind and brain must be constantly on the stretch until the building was finished. Mr. Smith spoke of an architect designing or superintending the furnishing of a house as well as the house itself, and this he looked upon as a most important matter. Some clients would trust an architect with the carrying out of a building from the foundation to the chimney-top, and yet would not take his opinion with regard to the design of a stove or a chimney-piece, and certainly not on the question of a paperhanging. This was a point which, in his opinion, ought to be more insisted upon as connected with the duties of an architect. As he understood it, an architect's duty was to carry out a building until it was externally and internally complete, and this could not be the case unless everything connected with it were under his immediate superintendence. He had great pleasure in seconding the vote of thanks.

Mr. Chatfield Clarke thought there were several points which must at once impress the mind of any one who contemplated building. The first was, that he should employ an honest and capable architect; and the second, that, having done so, he should give him his full confidence; and this latter point was, in his opinion, one of the principal requisites to success in any building. The next point was to secure an honest and able contractor, for, as had been said, however desirous an architect might be of producing a good building, he could not do so if the builder were a determined rogue; and the result of his own experience was the same as that of Mr. Smith, that, however careful they might be, they could not make a bad builder do good work. Another point, which he considered of some moment, was, that when once a building had been planned, it should be altered as little as possible. A building was a conception as a whole, and, to a certain extent, might be considered as an inspiration, and therefore any subsequent piecemeal alteration very often interfered with the general effect of the structure. In conclusion, he would remark that building a house in the country was a very easy matter indeed compared with building in London. Very recently, in erecting quite a small building, which was not to cost more than 5,000*l*., he had had eight or ten different negotiations on the subject of party walls, the rights of adjacent lights, difficulties connected with the Metropolitan Building Act, lines of frontage, and so on. Questions of lights and other matters were now refined upon to such an unnecessary and vexatious extent, that he believed it would be well if professional men were to take some means of calling public attention to the difficulties thus thrown in their way. He thought the manifest conclusion to be drawn from all that had been said was, that no wise man would enter on building operations of any extent without the assistance of a competent architect.

Mr. J. C. Wilson said there were a few questions which he should like to ask, not being a member of the profession. Did architects generally approve of deafening the floors of houses, as was frequently done in Scotland, by introducing a mixture of lime and ashes, which was found to keep the rooms warm in winter and cool in summer? Again, did they approve of making flues of a taper shape? He believed such a method would greatly tend to prevent chimneys from smoking. He should also like to know if architects approved of making a separate flue for ventilating purposes from each room to the roof of the house. He was not sure whether or not it was the practice amongst architects, when serving their apprenticeship, to learn the various trades connected with building, such as joinery, masonry, and so on. This course was adopted by engineers, and he believed with very great advantage, as it gave them a knowledge of materials and construction which they could hardly obtain in any other way. He also begged leave to throw out the suggestion whether it would be possible to build houses according to certain classes, and have them classed, much in the same way as ships were classed at Lloyd's, having regard simply to the quality of materials employed and the workmanship, so that the purchaser of a house which had been built and certified, say by the Institute of Architects, as belonging to a certain class, would know that he was buying something of a certain marketable value. Of course, no house would be classed at all which had not been built under the superintendence of a professional man. Whatever the public might think of the value of an architect's services, the members of the kindred profession were quite aware of the great ability and talent which were required to make a man a good architect, and he hoped the day was not far distant when the two professions would be found going more hand in hand than they had hitherto done, the architect doing that portion of an engineer's work which properly belonged to him, and the engineer, on the other hand, assisting the architect in all purely engineering matters.

Mr. Bishop said that last summer he had a

house built, the bills of quantities being got out by a surveyor from the architect's specification, and upon these quantities builders were invited to tender. He went through some of the details himself, and he found, to his astonishment, that on the average the results were 33 per cent. in excess. The consequence was that he had to call upon the different parties who were tendering, and explain the matter to them, and one contractor, who had made out his estimate, was able to reduce it by 400*l.*, which was about 33 per cent. of the total.

Mr. Jones remarked that, having heard what was the amount of remuneration which architects received, he should be much obliged if Mr. Smith could inform him what amount of consideration would secure honesty in a clerk of works. It was quite possible for him to have a commission on both sides, whereas, unless he were quite loyal to the person [building, there was every probability of the structure being defective. It was one of the greatest evils in the present day that so few workmen could be trusted; so that a man, unless he could do a thing himself, never had any certainty that it would be done honestly and properly according to his expectations.

Mr. Edwin Nash said all architects knew the difficulty of obtaining good clerks of works, and very often they were glad to have a building erected without such assistance, feeling that they could trust much better to the builder himself. A good clerk of the works was a most valuable man, but though there were some of that class, unfortunately there were a good many of the other; and being generally drawn from the ranks of workmen, it could not be expected that they would always be all that was desired. Architects did not object to deafening floors, which were very often treated in a similar manner to that described, nor did they object to taper chimneys, except as a question of expense, and some little arrangement being required in the management of the brickwork. The effect in the way of preventing smoky chimneys had not been much tried, but he believed it would be found beneficial, although of course there were objections; as, for instance, such chimneys would be much more exposed to the weather than those of one calibre throughout. One matter which had not been touched upon he considered of great importance in connexion with the architects' duties; he was too much harassed with practical office work of a dry technical character. This could not have been the case with Michaelangelo, Raffaelle, or the other great masters of former periods, or they never could have designed and carried out their magnificent works. He considered that architects ought to be far more of artists than they were, and unless a large amount of their dry business work were transferred to some one else, he thought English architects would never rise to the high standard of excellence which had been seen in former days.

Mr. Hyde Clarke said it had been hinted to him that the audience was to a great extent a professional one, and that the discussion had been principally carried on by architects; but as an old member of the Society of Arts, he might remark that the subject came strictly within their domain as a technological one, and one of very great importance to the public. The point of view from which it had been treated, was eminently practical, for every one was, in some degree, interested in the building of a house, which could not be said to the same extent with regard to building on a large scale, although on that also there was a bond of union between architects and an educated public,—the community of enjoyment in works of art. Unfortunately architects were too often neglected in such matters as house building, and he regretted that a greater number of what might be called the employers of architects were not present, to see, from the drawings which surrounded the room, the great quantity of work which an architect had to perform. The interesting paper which had been read showed the relations between the architect and employer, and pointed out to the latter the real value of the services rendered by that profession. If this were more generally known, he believed there would be a much better understanding between architects and the public. In every business but that of building the value of ability and directing power seemed to be understood. Even in a tailor's shop this was the case, but people were much fonder of having their houses from a "slop-shop" than their clothes; they were not always in the habit of having them made to fit, and yet every one knew that even in the matter of a coat, a considerable amount of ability was required in order to ensure a successful result.

Mr. Ladd, as a professional man, felt much obliged to Mr. Smith for the manner in which he had presented his drawings to their notice. These plans showed the amount of work which had to be got through; and, when it was done in so complete and detailed a manner, he did not consider that the 5 per cent. was at all an adequate remuneration. These drawings set a good example to any young architects or pupils who might be present, and showed them how their duty should be fulfilled in carrying out any work which was placed in their hands. Very often, he was afraid, not one-fourth of the drawings—in proportion to the extent of the work—were made which were here shown, and in those cases probably 5 per cent. was enough. First-class architects, of course, would do their work thoroughly and well, and in such cases they were not over but under paid. In his opinion there should be different scales of remuneration according to the amount of detail in the building, which involved extra work on the part of an architect.

Mr. Tracy asked if there were any intelligible rule known to architects by which they constructed a house; for, according to his experience, smoky chimneys were the rule in dwellings of all classes, both those on which unlimited expense was lavished, as well as those built in the cheapest possible manner.

Mr. Smith, having thanked the meeting for the kind reception which his paper had received, said that notwithstanding the remarks of the last speaker, architects had a certain amount of knowledge with regard to the building of chimneys, and when they were carefully constructed on principles which were generally understood, they were not often complained of. It must be remembered, however, that it was a very delicate matter to arrange for a column of hot air to ascend, in all weathers and under all circumstances, so that it should never be liable to disturbance either by the opening or shutting of doors, by the starting of similar currents in other parts of the house, or by changes in the condition of the atmosphere inside or outside the building; still he was quite ready to admit that a good deal might yet be learned on the subject of flues. It was a very common practice to deafen the floors in good houses, but he knew nothing about taper chimneys, and should not like to take the responsibility of advising their introduction. Distinct ventilating flues were very desirable where expense was not an object, provided they were constructed upon an intelligible system. It was not usual for architects to go through any large series of workshops, but they not unfrequently spent some time in a joiner's shop, which was, no doubt, of considerable advantage. It would not be very easy to devise a classification for houses; and if it were done, he did not think it would be of any practical value. One of the most important points in the discussion was that raised by Professor Kerr, as to the share which the proprietor himself might take in the erection of a building. What he had said in the paper referred rather to a man acting as his own architect, which he did not deem by any means desirable; but, for his own part, the greater share his client took in the building the better he was pleased, not that the result was always better, but that so much responsibility was taken from his shoulders. He perfectly agreed that a client had a right to dictate his conditions, and it was the business of the architect to carry them out in the best way possible. He believed the best results were attained where the client contented himself with stating his conditions, and left to the professional man the carrying of them out. The whole question was complicated to some extent by a house being so familiar an object, and the furniture even more so. From this cause, probably, it was that an architect was so rarely allowed to give any opinion as to furniture, or even what were really parts of the house, such as chimneypieces and wall papers. His own idea was that a man who wanted to make the most of his architect would use his skill and experience to the utmost, considering that he knew more than he himself did. Occasionally there were instances in which the client might detect matters which had escaped the attention of the architect, but, as a rule, it was the other way. Some of his brethren had rather complained of his not having said more of the artistic part of an architect's work, but the fact was he had been cautioned not to go into that matter, but to deal with the subject from a technological point of view, as being more specially fitted for discussion in that room. The truth was, considerations of artistic excellence and beauty never ought to be absent from the mind of an architect, whose loyalty to his profession should make him endeavour to make the plainest and simplest building conform to the true principles of art. He could not agree with what Mr. Chatfield Clarke had said about the alteration of plans when once made; but that was simply an instance of the different way in which different minds worked, and probably it would be found that no two men arrived at the same end by the same road. He could not go into the question raised by Mr. Bishop as to the quantities without having all the particulars, but the remarks of Mr. Jones as to clerks of works were most important. No sum of money would purchase honesty in such functionaries, but at the same time he had had many, and had never had a thoroughly bad one. He always regarded it as one of the most important points to secure excellence in a clerk of works, and spared no pains, therefore, to ascertain what was his previous character.

The Chairman, Sir M. D. Wyatt, said he could not help feeling that the duties which an architect was called upon to render to his client had been, if anything, rather understated in the paper of Mr. Smith. One particular duty which had not been insisted on, but which was of great importance, was that of exercising patience. There were moments of difficulty in the progress of almost every great work when an immense deal of tact and patience was necessary sometimes even to keep the peace between half a dozen people, and to make things go on smoothly, and this was worth at least one out of the 5 per cent. Another essential qualification was a combination of unselfishness and friendliness. An architect, in the early stages of his intercourse with his client, could very frequently be of the greatest possible service, sometimes by telling a man that he must spend more money, and sometimes that he should spend less. It was important early in the negotiations to see what was the tendency of the client. Sometimes he might be a man with a great taste for art, but with limited means or heavy family claims; and if in a moment of selfishness an architect took advantage of that enthusiasm, and went on glorifying himself at his client's expense he did that which was improper and reprehensible. Again, the relations between the architect and his client being reciprocal, it was his bounden duty to act as a friend to his employer throughout; and from the moment that was clearly understood all mistrust would be removed, and the happiest relations would be established. Another quality which the architect should possess was that of justice. It was necessary for the protection of the employer that contracts should be in very strict terms; and where the employer was of a grasping disposition, the builder was often so much at his mercy, that unless the architect held a very fair hand between the two, great injustice might be committed. He should, therefore, strive, above all things, to earn in all his transactions a character for uprightness, taking care, on the one hand, to protect his client, but never allowing injustice to be done to the builder.

THE KING OF METALS.

NATURE in her beautiful and wonderful divisions completes the arrangement by marking out a ruler or head of the various divisions. To some "one" is given greater, grander attributes; it is marked out as being the chief of the order or species. Not only in things animate does this occur, but in things inanimate also. The stately and noble oak, the king of the forest, fosters the growth of tender parasites under its sturdy arms, yet braves the storm that brings destruction to its meeker neighbours. The greatness of these "lords of creation" does not always arise from great power. They usually have their equal in sustaining or resisting power: has not the king of the beasts, the majestic lion? Yet there is none to equal him in the "grandness" of his nature.

Our subject (see page 243, *ante*) is not only kingly in its qualities when brought into manufactures, but is so in its bearing naturally. The records are closely kept of where it is found, and in what condition, and the result shows that it is discovered in the purest condition of any metal. Most ores yield only a small percentage of even ounces to the ton, but gold is got without smelting, and wherever it exists it is visible to the eye without any artificial process. It is rare that

any other metal is found so; but with "our" metal it is the rule,—from 60 to 99 per cent. of pure metal, and be it marked there is little else but its "consort," silver, taken in its embrace. Californian gold averages of pure metal 875 to 885 per 1,000; Australian ditto 960 to 966. Appended is a list of various proportions, from which it will be seen how little else but silver is there :—

	Gold.		Silver.
Imarowski	60·08	...	39·38
Titiribi, Colombia	74·00	...	26·00
Trinidad	82·40	...	17·60
Ogas, Ancas	84·50	...	15·50
Senegal, Africa	84·50	...	15·30
Petropawlowski	86·81	...	13·19
Chandière, Canada	86·73	...	13·27
Riv. Lucio, W. Mouquita	87·94	...	12·6
Baia, near Pampelona	88·15	...	11·85
Llana	88·54	...	11·42
California	89·61	...	10·05
Beresof	91·88	...	8·03
Katherenenburg	94·09	...	5·55
Brazil	94·00	...	5·85
Australia	95·48	...	3·59
Katherenenburg	95 81	...	3·58
California	96·42	...	3·58
Katherenenburg	98·96	...	0·16

Although gold has from time immemorial held the sway, it is somewhat singular that there are no records of great finds in early times. Russia, until within a few years since, has been most productive, but nothing approaching recent discoveries is recorded, with the exception mentioned below. In North Carolina, a nugget weighing 37 lb. Troy was found; the largest mass as yet from California is 20 lb. In Paraguay a large mass of rock fell down and brought to light pieces from 1 lb. to 50 lb. in weight. In 1842, at Taganka, Russia, a mass was found of 100 lb. Troy, now in the Museum of Engineers, St. Petersburg. Australia eclipses all these by a trifle weighing 137 lb., sold for 5,532*l.*; another from Forrest Creek weighing 27 lb. 6 oz. 13 dwts.*

Wherever gold is found it is visible to the eye without tests, we have said,—*i.e.*, found in quantities worth searching for; perhaps its most natural condition is in quartz: here it is observable in small plates bright and pure; the beds of streams and ravines near will abound with it in grains and nuggets,—the small plates rounded by friction with rock and stone. The rock, worn away by diluvian or ante-diluvian torrents, detaches the particles of gold, and they are deposited in little hollows of the soil, and, their pureness making them very ductile, they get compressed into nuggets. This is the greatest source of supply of gold, and is the system Nature has adopted all over the globe, and one we claim as distinctive of gold; where large nuggets are found apart from these water-courses undoubtedly volcanic heat has been at work. The primeval condition of metals is a wondrous matter to think over. The round of nature in all things that generate can be in some degree marked out, but with inanimate metals it is different; the air is charged with metallic particles, sea water holds metal in solution, the fissures of the earth contain fluids impregnated with oxides of metals, yet among all these gold is not found. Certainly none of the popular metals can claim the same exemption. Scientific manufacturers have brought down its proud spirit, and if nature does not dissolve it, art has done so; and it does seem one of the few things that are *new* under the sun, that the decomposition should be a great necessity in trade. A large quantity of gold is consumed in photographing and in other ways, never to be recovered in our vision, but to be gathered together again—when? The gases that foster vegetation are set free by the destruction of coal; and vegetation produces coal, recreated, but there is no recreation in one subject (now a king and a subject too!), but simply a reproduction by being brought together; it passes through no different state of being. When Ophir was the source whence the Romans obtained their gold (believed to be on the coast of Madagascar), California and Australia were overlaid with gold: it was not being formed like other products of nature, but lay there grand in its distinctiveness, chaste in its associations, and glorious in its colour. What a wondrous power has the king of metals! There is a great nation now—great in the number of its people, great in its attributes, in their productions, in the space they occupy; but they lack gold, and their credit suffers. It is sensitive, and has been freighted from their shores, for it taketh to itself wings and flieth away at the prospect of disruption.

* *Vide* Dana's "Metallurgy" (American), in which valuable book there is an error in stating that gold can be beaten to 1,280,000ths of an inch in substance; long before it would come to this it would be reduced to powder.

TECHNICAL EDUCATION IN THE MIDLAND DISTRICT.

DURING the past fortnight Mr. Buckmaster, from the Science and Art Department, has held meetings in the different colliery centres near Chesterfield, for the purpose of promoting scientific instruction. These meetings were brought to a close by a conference, which was held under the auspices of the mayor in the Municipal Hall, Chesterfield. There was a large and influential attendance of the principal colliery owners and others interested in the promotion of educational questions. Mr. C. Binns, J.P., from Clay Cross, occupied the chair, and introduced Mr. Buckmaster, who, after explaining the Government scheme, said—"We have been blessed beyond other countries with an abundance of coal and iron, the raw material of our industrial prosperity and wealth. Where nature does most, man frequently does least, and in countries less gifted with mineral riches schools have been established to compensate by scientific instruction for their relatively unfavourable position. Watt saw the importance of this knowledge seventy years ago, and established a school at Soho to teach workmen elementary mechanics and the laws of heat. It is not supposed that abstract scientific knowledge will ever qualify a man to become a bailiff or overman. The practical part of a miner's business must be learnt in the mine; but superior intelligence will distinguish itself in every situation. What do you propose to do? The Government, through the Science and Art Department, is prepared to give very considerable assistance in promoting instruction in those sciences which relate to the industries carried on in this neighbourhood. The first necessity will be a science teacher. I fear it is now too late for persons to prepare for the science examinations which will be held throughout the country next month. Every science teacher, unless he have a degree, must pass an examination in the subject or subjects he proposes to teach. He must instruct a class under the supervision of a local committee. The class must receive not less than twenty-five lessons, and undergo an elementary examination by means of printed questions in the subject or subjects which have been taught, and on the result of this examination liberal payments will be made to the teacher. The pupils of these science classes are encouraged by prizes of books, certificates, medals, exhibitions, and scholarships, and 50 per cent. will be given towards the purchase of apparatus necessary for the proper instruction of the class. Under certain regulations, scholarships of the value of 10*l.* and 15*l.* a year are given to the best boys in our elementary schools. The scheme contains the maximum amount of help with the minimum amount of interference. Through the various meetings I have attended in this district I have fully explained the details of the science regulations and the conditions upon which the State is prepared to help forward a scheme of scientific instruction suited to the industrial and educational requirements of the country. It now remains to be seen what you are prepared to do. If you believe in this instruction, if you believe men are more amenable to reason as they become more educated, if you believe in the growth of that intellectual nature which God has given in various degrees to every man, then I ask your co-operation and help. It is useless for the State to multiply these agencies and opportunities if those for whom they are intended are careless and indifferent. Our unparalleled prosperity has not been an unmixed good; we have not developed in the same ratio as our wealth the culture of humanity. There is one way by which all difficulty can be overcome, and that is, to engage from next October to the end of April a competent science teacher capable of giving instruction in three or four sciences. Such a teacher would move from place to place within a convenient distance from Chesterfield, and teach classes, and from these classes other teachers and assistants would be raised up. Such a scheme has been in operation in East Lancashire, and is now in operation in the colliery districts around Newcastle, and I am informed that the scheme has worked with a success beyond anything which could be anticipated."

The chairman said he should be very sorry if the conference did not come to some practical result. He thought the scheme explained by Mr. Buckmaster capable of doing much good.

Mr. Markham, of Stavely, said he should like to ask Mr. Buckmaster what he thought would be a fair guarantee for a science teacher?

Mr. Buckmaster said a teacher could be obtained for a guarantee of 100*l.* a year, but this guarantee must be understood as quite distinct from any payments to the teacher by the Science and Art Department.

The Rev. J. Booth—May I ask Mr. Buckmaster what fees are required of the pupils?

Mr. Buckmaster—This is very much a matter of local arrangement. I find at Stavely and Clay Cross there is a desire, and I believe it is the practice to provide a free elementary education; but any fees paid by pupils of science classes could go towards the guarantee fund. The only regulation of the department is, that the fees shall not be such as to exclude young men, and those who live by manual labour.

The following resolution was passed: — "That this meeting, having heard the explanation given by Mr. Buckmaster, hereby agrees to raise a guarantee fund of 100*l.* a year for five years, for the purpose of employing a competent science teacher, and that this meeting do resolve itself into a committee for that purpose."

In a few minutes nearly half the guarantee, in sums from 10*l.*, 10s. to 10s. 6d., was promised in the room. Mr. Busby was solicited to forward a circular to gentlemen in the district who were not present at the meeting, asking their countenance and support to the undertaking.

SAN ZENONE, VERONA.

SOME days back I was working in the church of San Zenone, when the custodian told me that it was intended to raise part of the pavement above the steps leading to the choir, to see if there were any arches similar to those in the aisles of the church through which the steps lead to the crypt. The two capitals seen in the crypt would seem to indicate the existence of arches at one time in the history of the church. Under the direction of an architect, the workmen very carefully raised some of the marble slabs above the steps, and, to the delight of all present, we discovered the crown of an arch immediately under the pavement. Very carefully removing the sand and rubbish, portions of a fresco were discovered, and then two rows of bas-reliefs similar in form to those on the arches in the aisles. The designs of the bas-reliefs are quite different from those upon the other arches, and they are in perfect preservation, the sharp cutting as fresh as ever, and the colour remaining clearly distinguishable.

Half the arch was uncovered, and upon the spandrel there is a fresco, consisting of scroll work, a large bird, and several figures. The subject is not clearly discernible at present, the other part being no doubt upon the other spandrel still covered; the colours are fresh, and but very little injured. The style of work is similar to that of many others in San Zenone,—very early, the outlines strongly marked, no attempt at gradation of colour, the folds of drapery, &c., simply indicated by lines.

In some places the surface had been broken, revealing the existence of a previous fresco different in design and colour.

This discovery has raised the question of the advisability of opening up the arches, so that the crypt may be seen perfectly from the main point of the church, and restoring the church to the condition it was in before the erection of the steps in the sixteenth century.

Of course the cost is the principal difficulty, unless the municipality undertake the work. There is, indeed, but little chance of its being done unless help can be obtained from other sources.

To open the arches, erect a balustrade above them, and also two small flights of steps in the aisles in place of the large one in the nave, which would seem to have been the original condition of the church by the presence of markings in the aisles, walls of steps on either side, and upon the balustrade to place the statues of Christ and the Twelve Apostles, will cost over 100*l.* English, and the parish of San Zenone is too poor to furnish such a sum.

JOHN BUNNEY.

Post-office Savings Banks.—A return relating to Post-office Savings Banks has just been published. It was moved for by Sir F. Goldsmid, and differs somewhat from the usual return furnished in pursuance of the Act of Parliament, inasmuch as it supplies various additional particulars. It shows, for instance, that the total amount received from depositors, including interest, to the 31st of December, 1868, was 27,153,571*l.* 5s. 1d., and the total amount repaid to depositors was 15,486,915*l.* 16s. 8d., leaving a balance due to depositors of 11,666,652*l.* 8s. 5d. The total number of deposits and withdrawals was 11,516,496*l.*, the average cost of each transaction having been 6·92d. Prior to the passing of the Post-office Savings Bank Act, 1861, it was estimated that the average cost of each transaction would be 7d.

CARL FRIEDRICH SCHINKEL.*

HAVING the honour to speak about Schinkel, I am rather in a peculiar and difficult position towards you, my professional *English* friends—peculiar in as far as I do not belong to your great nation, and therefore difficult, as all the profound sentiments and all the different sources of feelings and views, the artistic disposition, and judgment and taste, are generally developed just as differently between two nations as the nations themselves.

Possibly I cannot but speak as a German, which I am proud to be, from a more or less German point of view, particularly when I speak about my countrymen. But I think truth of mind, real nobility of intellect, and independent artistic feelings are coins which have the same value in every part of the world, and amongst every nation, and which do not require a letter of introduction stamped on in the form of the likeness of any king or queen to render them valid, even if it were possible for this to do so. From this cosmopolitan point of view, I will commence the solution of my task, and try to speak to you about a great man, one of the noblest princes of the royal family of superior men of all times.

How shall I do it? Göthe says, "You are like those you understand." In considering these words, I should almost doubt whether I should be able to do justice to the high genius of Schinkel, and should, from the beginning, almost despair of undertaking to depict the material of his intellect, and the forms of its appearing. As I hope to convince you, the material of his intellect was of too high a nature to hear even the well-founded expressions of devoted admiration; and though full of this admiration as I am myself, I will not trouble you to listen to its effusion, as I cannot approve of the course generally followed in talking about great people. If we never had seen the sun, no talking about its brilliancy and life-creating powers would be able to give us an idea of the blessing spread by the participation of it. Our eyes must see it, the whole of our being must feel it, by being exposed directly to its action, and will feel it as sure as we are men. Therefore I am sure you will recognize Schinkel's genius as surely as truthfulness towards your best artistic feelings, convictions, and judgment abides in you.

Although Schinkel was an architect principally, I cannot, in characterizing him, first speak of him as such, as it is not his architectural mind exclusively that makes him great; it is far more his philosophic, artistic disposition and profoundness of so high and extraordinary a class which gives us the key to understand him, this solely and totally being the foundation of the structure of his artistic being, the formula for the results of his activity, and the unit for the measure of his merits. It was this high artistic philosophic disposition and capacity which enabled him not only to be a great architect, but also a great painter and a great sculptor, being at the same time gifted with a rare fancy and very great technical talents, and in most of his works, wherever opportunity and circumstances allowed, the architect, the painter, and the sculptor speaks to us simultaneously.

Let us, therefore, first make the acquaintance of some of his æsthetic views and ideas as they come to hand; for instance:—

"Beauty of form is the theory of created things become visible (that is, apprehended by us instinctively)." Or,

"Beauty in form is the logical consequence of creation grown visible."

"Beauty cannot exist by itself, but only in connexion with objects."

"The vocation of man is to develop the created according to the logical consequences of its laws, and that with self-conviction, and not arbitrarily."

"Independence of thought is increased by the education of the reasonable, sublime, and beautiful. None of these ingredients may be omitted, because even the moral is enhanced by the beautiful, and it is, for instance, of importance whether a beneficial act shows itself with beauty or without. In the first case the act will thoroughly and really render happy and encourage, while in the second it will offend. There is thus an action of the arts on the moral state. The freedom of sentiment represented by certain means through art in the empire of the beautiful excludes every element of egotism."

"The aim of an artist is, that all should participate in the delight of the very highest, and this alone is moral and virtuous."

"The beautiful seems to be one of the foundations of the whole existence on which the life of reason depends. Without this foundation it is only a battle with barbarism."

"Man in every respect should aim at beauty, in order to influence all his motives and render the results of their actions beneficial. Then the idea of duty in a rougher sense will disappear, and he will always act in celestial delight, which is the necessary consequence of producing the beautiful. In other words, every action should be a task of art to him."

Time will not allow me to quote any more, but you will feel through these ideas the spirit of a mind which is able to feel in a highly superior manner, and the aim of which is directed altogether to the idea of the beautiful as the commencement and the end of all earthly and transcendent intentions. Thus he was able to be a worthy priest of art, and of morals through art.

But not only did he preach maxims of this kind on paper or in conversation, but he acted also from this high point of view, and the whole of his works in architecture, painting, and sculpture are only translations of these pure ideas into stone and mortar, into paint and marble. He was a true moralist in art, and as it is impossible for fashion to govern the moral, as moral is unchangeable, equally impossible is it also that Schinkel should have sacrificed any of his art, so holy to him, to do degrading, slavish homage to fashion in art. His philosophical ideas were independent, and so were his artistic creations.

Perhaps they would often have had more the appearance of so-called originality if his intellectual independence had only been founded on the idea of doing something different from what had been done before. This being too low for him, too destitute of high principle and aim, the germs of his ideas were always beauty in its artistic-philosophical sense—beauty of form by its correspondence with natural law—beauty in aim by true, total, and most correspondent fulfilment of requirement.

* * * * *

Before we converse about Schinkel's position towards his epoch, the beginning and middle of this century, in which he lived, we must draw our attention to the state of things as he found them, and to the conditions and circumstances under which he had to develop his ideas and exercise his activity.

The commencement of the nineteenth century signalises the latter end of a long and severe illness of the social state of things in nearly the whole of civilized Europe for two centuries previous. All the bands of the general laws of a moral existence had been broken, and the natural consequences were the total loss of consciousness of the nations. The poisoning effect of this was felt everywhere, but, thanks to a wise Providence, the statical development of affairs now took a favourable turn, and gave the leading nations an opportunity of becoming conscious of their physical power, and thus scattered the seed for a new epoch of formation, which now immediately began.

A feeling of respect for law again prevailed; the state of anarchy was now to be looked upon as belonging to an unworthy past; the illness was overcome; the individual mind of nations began to reflect on the reason of it, in order consciously to be able to prevent its return. Thus a strong and predominant historical feeling is created; philosophers, statesmen, and artists look back to the time and state of things long past away, in order to refresh themselves, to heal the burning wounds late events had inflicted, and to relieve the loneliness and barrenness of feelings by the acknowledgment of their unworthiness.

The recollection of classical times and its spirit did, naturally, not fail to produce its attraction again, being, on account of its everlasting freshness, its simplicity and pure fancy, the most healthy mental food for the state of re-convalescence. But the classical spirit did not only attract again—it soon was cherished and loved. Particularly in architecture we see the leading nations—Germans, French, and English, taking the greatest part in this movement. Since Winkelmann in Berlin, who particularly has the merit of drawing public attention to the remaining relics of the ancients, great praise is due to two Englishmen, Stuart and Revett, for the perseverence and excellent manner in which they drew the precious treasures of art to light again, and not only so, but gave them to the whole civilized world, by measuring, copying, and drawing whatever was left to be found of them. Thus the language of forms of the Greek architecture became known again, and the grammatical laws of it began to be understood more or less.

But before this was the case, the grandeur, truthfulness, and beauty of the ancient Greek productions were high enough to fix the attention of the nations firmly upon them; the elements were too new, the idea of reforming or remodelling them therefore very distant, and the long-forgotten charms induced the mind to rest upon them quietly, and enjoy their sunshine.

In England imitations and copies of the ancient buildings soon were seen, and thus, for instance, in London, St. Pancras Church was, in 1819, built in Euston-square, by Inwood. This, singular to say, is an exact copy of the Erechtheion at Athens, at each side of which two imitations of the Pandroseion are given. In order to do the utmost and keep it up to the standing of the day and its customs, the old tower of the winds, the monument of the Andronikos at Thyrre, was placed aside of this Erechtheion, but as it is too small alone, and would not have looked like a somewhat fashionable church tower, the same monument was simply placed again on the top of the first one—certainly an idea about as bright as that of Columbus in making the egg stand.

So is St. Philip's Chapel, by Repton, in Regent-street, merely a copy of Lysikrates's lantern put on the top of an extra clock-case, for the purpose of producing a genuine Greek clock tower; and so on.

These facts seem to be singular, but are quite in accordance with one of the principal English peculiarities; that is, the great respect for everything that has once attained a name and standing, without going deeper into the real cause of the reputation attached to the object. The great weight of so-called authority and real authority has governed the English mind more than any other, and does so still.

Unhappily, nevertheless, the development of classical architecture in England, after the first powerful movement of transplanting it, soon lost its prospects; and very naturally so too, because the spirit of it did only meet an inclination of the public mind, which was interested in making itself acquainted with it, being something new and fresh, imposing, and generally acknowledged. But there was no real sympathy, no natural disposition for the reception of classical spirit, and I venture to say that this will never be very different in England. Nobody could say that this is not as it ought to be—not at all. But the English mind is differently constructed; the English mind is a Gothic mind, and as little as a column or pilaster can do the same service as a buttress, so little is a real English mind suited to possess a real genuine classical architectural disposition.

But, after all, the classical fashion of these days, although it died away, because it did not exceed this state of infancy, had undoubtedly had an excellent effect on the history of architecture in England, as means to a more philosophical way of looking into the æsthetical questions and requirement of architectural constructions.

Thus much about England, whose Gothic architecture has even benefited by it, and now perhaps occupies the first rank in the civilized Gothic world. Let us now see how Germany, and particularly Berlin, the centre of intellectual life in Germany, was influenced by the new movement in architecture.

The effect was similar to that experienced in England as far as the unconditional reception of the refreshing elements of the renewed and completed traditions went, but the understanding with which this was done was very different.

It was generally felt that these traditions were not only to be looked upon as worthy of imitation and a happy and refreshing contrast to the late past; but it was far more felt that they were the source of ideas for the formation of the future, corresponding with the national German philosophical disposition.

Thus no inducement was felt to make an attempt at direct copying only for the sake of copying, but, in fact, an eager study of the alphabet of Greek forms began, in order to be able to read the Greek spirit in artistic form, to learn to understand it thoroughly, to make it the means of education to the artistic views and taste, and thus to lay the foundation for consequent development of ideas and actions resulting thereof. Schinkel was already in his earlier days the bearer, and, perhaps, the leader of these ideas, and the whole of his work throughout his

* By Mr. R. Jähns: from a paper read at Liverpool Architectural Society.

life was the fertile embodiment of them. This mental influence was so widespread and intensive that he entirely governed the taste of the day without making it a slave in any respect, the means of his government and his intentions only being true love to art and the highest independence and freedom of thought. His actual endeavours, crowned by rare and extraordinary success, were thus, not only to regenerate Greek architecture, but far more, to form new words and a new language, fit for the use of the present day by means of its best elements. That he did not do this from a prejudicial point of view, but with depth and breadth of genuine artistical tact and nobility of feeling, you will best understand by listening to his own words. He says, for instance, referring to one of his most important works :—

"I followed the simple and superior style of the pure Greek art, which was enabled by an undisturbed development to reject every element strange to its nature; and thus, in opposition to modern art, preserving the character of innocence, used all my mental powers and talents for the most organic formation of details in every part. This totally ideal style, though in direct contradiction to many conditions and requirements of our modern life, was, of course, to be modified accordingly."

"The ideal in architecture is only totally realized when a building entirely corresponds as a whole, and in all its parts, mentally and physically, with its purpose."

"From this alone, it is clear that the ideal is to be modified at every period by its new requirements,—that all the artistic material already inherited by art from the different periods of past history correspond more or less with the requirements of the present day, and therefore must be modified in their application; and it will also be seen that even entire new inventions are necessary to reach the aim, and that in order to produce a real historic work (not archæologic), not only limited historic matter is to be repeated, which would not produce a new history, but a new matter is to be created, which really allows history to continue."

Again he says,—"It also seems necessary to me to place the different spheres, within which the feeling of an architect must necessarily be formed, distinctly opposite to each other, in order to enable him to survey at the same time the entire extent of his art. At first it is to be taken into consideration what our days require in their architectural undertakings. In doing so we at once commence to criticise the elements in these undertakings. We try to learn which are congenial to the spirit of the day, and which are not, and whether the undertakings of this kind are infringed by wrong views, prejudice, ignorance, want of fancy, and suspicion of new inventions suitable in assisting to remove and overcome difficulties connected with the undertaking.

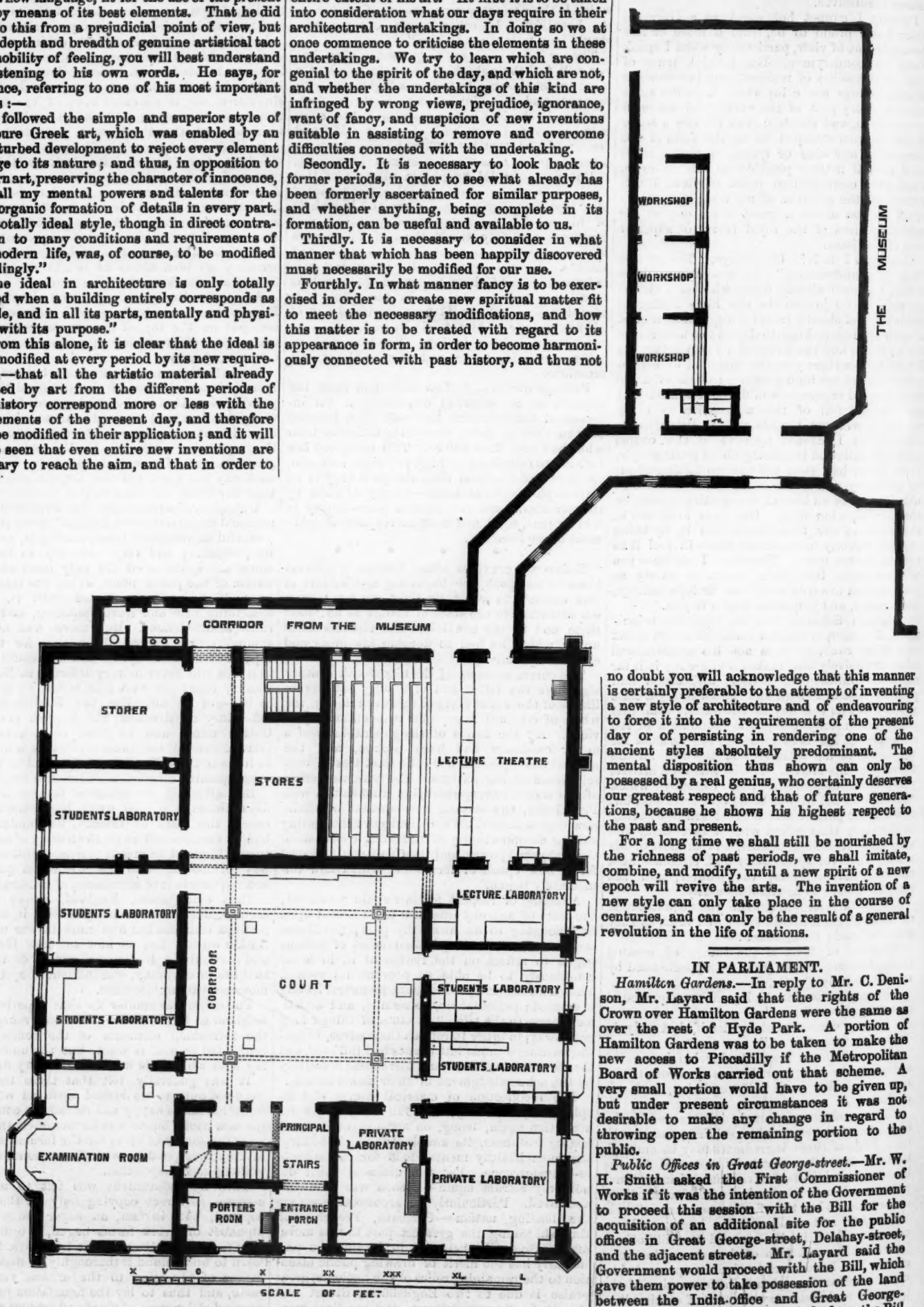
Secondly. It is necessary to look back to former periods, in order to see what already has been formerly ascertained for similar purposes, and whether anything, being complete in its formation, can be useful and available to us.

Thirdly. It is necessary to consider in what manner that which has been happily discovered must necessarily be modified for our use.

Fourthly. In what manner fancy is to be exercised in order to create new spiritual matter fit to meet the necessary modifications, and how this matter is to be treated with regard to its appearance in form, in order to become harmoniously connected with past history, and thus not only preserve the style in the work, but much more, in a beautiful manner, combine the charm of novelty with the feelings of (the) style impressed upon the spectator. Thus a happy creation of the present day results, particularly enhanced in its charming effect by the acknowledgment of the primitive style."

In these remarks you will certainly see very delicate treatment of one of the most serious questions of art of the present day, and I have no doubt you will acknowledge that this manner is certainly preferable to the attempt of inventing a new style of architecture and of endeavouring to force it into the requirements of the present day or of persisting in rendering one of the ancient styles absolutely predominant. The mental disposition thus shown can only be possessed by a real genius, who certainly deserves our greatest respect and that of future generations, because he shows his highest respect to the past and present.

For a long time we shall still be nourished by the richness of past periods, we shall imitate, combine, and modify, until a new spirit of a new epoch will revive the arts. The invention of a new style can only take place in the course of centuries, and can only be the result of a general revolution in the life of nations.



THE CLARENDON LABORATORY, OXFORD.

Plan.

IN PARLIAMENT.

Hamilton Gardens.—In reply to Mr. C. Denison, Mr. Layard said that the rights of the Crown over Hamilton Gardens were the same as over the rest of Hyde Park. A portion of Hamilton Gardens was to be taken to make the new access to Piccadilly if the Metropolitan Board of Works carried out that scheme. A very small portion would have to be given up, but under present circumstances it was not desirable to make any change in regard to throwing open the remaining portion to the public.

Public Offices in Great George-street.—Mr. W. H. Smith asked the First Commissioner of Works if it was the intention of the Government to proceed this session with the Bill for the acquisition of an additional site for the public offices in Great George-street, Delahay-street, and the adjacent streets. Mr. Layard said the Government would proceed with the Bill, which gave them power to take possession of the land between the India-office and Great George-street. It was intended to exclude from the Bill certain houses in Great George-street, Delahay-street, and Duke-street, according to the deposited plan.

THE CLARENDON LABORATORY, OXFORD MUSEUM.—MR. T. N. DEANE, ARCHITECT.

CLARENDON LABORATORY, OXFORD.

THE museum built at Oxford, under the direction of Messrs. Deane & Woodward, a few years ago, attracted, as our readers will remember, much attention, partly because of its architectural character, partly because of the battle which raged in the University between the New and the Old as to the introduction or exclusion of complete means of scientific education. It seems strange that already within ten years the fine accommodation requires extension. The department of physics, ably presided over by Professor Clifton, F.R.S., is to be wholly remodelled—indeed created. Mr. T. N. Deane, who also designed the new buildings at Christ Church, is the architect of the work. The funds were provided by the judicious wisdom of Mr. Gladstone, Lord Carnarvon, and Sir William Heathcote, trustees of a fund left by the great Lord Clarendon, and arising from the sale of his works. The fund had been long accumulating, and in consequence of the terms of the will the disposal of it came absolutely into the trustees' hands. Looking at the needs of national scientific education, they acted wisely in erecting the Clarendon Laboratory for the study of physics, the most precise and the most fundamental of the circle of natural sciences. The building is arranged to meet the requirements of the three courses into which the study of physic must be divided, viz., experimental lectures on the principles of the science, mathematical lectures on the physical theories, and practical study of experimental methods.

In the portion of the building to be used as the Laboratory, arrangements have been made for properly fixing the different instruments used in accurate experiments, the apparatus required for each branch of physics being placed in a separate room. A student wishing to use any instrument, will perform his experiments with the apparatus thus fixed, and will not move it to a place allotted to himself; in this respect a physical laboratory must differ from a chemical laboratory, as it is often impossible to move physical apparatus without causing great delay, and often injury to the instrument.

On the ground-floor, the theatre for experimental lectures occupies the east side, and is joined at the south end by a store-room, to be used also as a laboratory for preparing experiments for the lectures; joining this on the south side, are two rooms for spectrum analysis and radiant heat. At the south-west corner and half the west side, are the private laboratories of the professors, and the remainder of the west side is devoted to the entrance passage, the porter's room, and the staircase. At the north-west corner is the room for instruments used in weighing and measuring; and joining this, on the north side, are two rooms for heat, one room for statical electricity, and a room for acoustics. On the first floor, on the south side, is a large room for the study of optics. At the south-west corner is the private room of the professor, and joining it, on the west side, the library and students' common room. At the north-west corner is a lecture-room for theoretical lectures, and on the north side are the rooms for dynamic electricity.

In the roof of the west side is a long gallery for optical experiments, and over the south end of the theatre are the photographic rooms.

The central space, which is open from the ground to the roof, and is surrounded by a gallery, is to be used for storing the apparatus which is not in use; and in it experiments, for which a considerable height is required, are to be performed.

The basement contains a room for the study of magnetism, store-rooms, and battery-rooms.

Some small workshops are attached to the building, and a covered passage connects it with the museum.

The theatre will accommodate 150 students, and forty students can work simultaneously in the laboratories. The cost of the building will be about 10,300*l.* The builder is Mr. Symm, of Oxford; the local superintendent, Mr. Bramwell.

OBITUARY.

THE Liverpool local papers recently announced the death of a lady whose talents may well call for a passing tribute in the pages of a journal devoted to art generally, and specially to art in connexion with architecture. The family to which she belonged was already known to those who take interest in art; and the names of Mr. Samuel Huggins, as a critical writer on architecture, and of Mr. Wm. Huggins, as an accomplished animal painter, will be familiar to many readers of the *Builder*. Their sister, Miss Sarah Huggins, whose sudden and unexpected death will have been a source of regret to all who knew her or her works, shared the artistic talents of her brothers, though not their reputation, except among a comparatively limited circle. Debarred by weak health and a retiring disposition from competing on equal terms with others in the race for distinction, she nevertheless followed her art as perseveringly and conscientiously as any of those more favoured and stronger labourers in the same field who work under the eye of a critical public. Miss Huggins turned her attention, in the first instance, to the depicting of flower and fruit subjects, in which she showed remarkable truthfulness of tone and colour, and extreme delicacy and finish in details: qualities which she afterwards carried to even greater excellence in her "still-life" compositions. She did not perhaps possess the dash of some of our better known water-colour artists, and which they turn to such account; but her truthful adherence to nature, and her exquisite colour and finish, rendered her works highly acceptable to those who would rather be pleased than astonished.

Her residence in Chester for some years, within reach of numerous subjects for picturesque architectural studies, led Miss Huggins to turn her attention to architecture; and such was her natural versatility of talent, that she succeeded at once, in this new walk of art, as completely as she had before succeeded in the totally different class of studies previously alluded to. Her interior views of Chester Cathedral, and of other buildings in and about Chester, and more recently also in the neighbourhood of Liverpool, exhibit a union of general effectiveness combined with the most accurate and finished representation of detail, such as is very seldom met with in drawings of this class, even by artists of much higher pretensions. Most particularly remarkable was her truthful representation of texture in the various material of a building; brick, timber, and stone, in all states of decay and weather-staining, being imitated with the utmost reality, yet without any undue or over-minute touching. Every one who has attempted the colouring of architectural interiors will understand the difficulty of accomplishing this.

Miss Huggins had exhibited pictures regularly for some years in Liverpool, and in most of the provincial exhibitions, and also occasionally in the Royal Academy Exhibition; which latter circumstance may be a sufficient guarantee of her talents with those who have no other means of judging. Some of her works had also found their way into the principal houses in the neighbourhood of Liverpool, but owing, as before observed, to ill-health and a reluctance to put herself forward, her talents were left to be mainly recognised by the generosity of her brother artists, from whom she enjoyed much sincere individual appreciation; and many distinguished artists might be named who were among the admirers of her works, and who held and expressed a high opinion of her powers. Indeed, all those who have seen her works, and who know anything of art, will feel that this short tribute to her memory is not undeserved or uncalled for; and it will not be thought out of place, in a journal like this, to call attention to the merits of one of that class of quiet, conscientious, and painstaking art-workers, whose labours are none the less genuine and worthy, though their praises are not in everybody's mouth; more especially when, as in the subject of the present remarks, talent and industry have been combined with a character and conduct exemplary in every relation of life.

H. H. STATHAM, Jun.

NOTE ON SCIENTIFIC ORIGIN OF ARTISTIC NOTIONS.

THERE are perhaps few things more striking to Englishmen in Roman Catholic countries than the frequent representation of the Crucifixion. Every church and place of worship has pictures or models; even the roadsides are adorned with effigies of the same subject.

In some parts of the Rhine valley this is particularly noticeable; a region luxuriating in madhouses, there these mournful signposts stand, at every turning of the road. There they stand of wood or plaster, gilded and plain, red and yellow, a warm flesh colour and ghastly, the pure white bodies stained with huge, hot-looking red blood streaks; every freak of the artist's imagination leads him to devise some new horror. But the most frigid of all, the most exceedingly horrible, is one painted wholly in blue, *icy cold*. Even on a hot summer's day the impression is a lasting one; the fearful appearance of that blue Christ is not easily to be forgotten.

That colour has meaning is perhaps one of the simplest and most easily believed in of artistic propositions; and the expression of that meaning has for some time past developed itself into an art. It acknowledges that reds and yellows are warm tints, and that blue is a cold one. It is this one little undisputed law we would concern ourselves with just now. How can the rule be accounted for?

One of our most celebrated essayists, Blair, accounts for this and many other items in taste by supposing that at some primitive period individual taste of a majority assigned such meanings and such arbitrary rules, educated them, strengthened and confirmed them to posterity.

To account for such laws,—for laws we admit them to be,—simply by perception and consciousness, is somewhat vague and unsatisfactory; and now that we are admitted more fully into the secrets of science, it is needless to build on so slight a foundation.

It is very gratifying to one's innate consciousness, however, that modern science fully confirms that which perception has already supposed. Newton's theory of the composition of the colour of bodies was the result of laborious experimenting, and his conclusion was that white light is not homogeneous, but formed of several lights unequally refrangible, which he called *simple* or *primitive* lights. It is owing to their difference in refrangibility that they become separated in traversing the prism.

On this theory, too, by a process called "diffusion," bodies decompose light by reflection, and their colour depends on their reflecting power for the different simple colours. Those which reflect all colours in the proportion in which they exist in the spectrum are white; those which reflect none are black. Between these two limits there are of course infinite tints, according to the greater or less extent to which bodies absorb some colours and reflect others. The red colour of a geranium is caused by its absorbing all the rays except the red, which are irregularly reflected in all directions.

Like the solutions of all the greatest problems in science, that belonging to our subject is exceedingly simple. Why is red called a warm colour? Why should a blue figure produce such a chilling effect? Science affords a clue to the mystery. These rays may have their respective heating powers *tested*, and it is found that the reds and yellows absolutely do possess the greatest amount of heat, and the blues the least. With a sensitive thermometer, the result will be striking. Where the blue ray mark will be but 58° Fahr., in the yellow it will have reached 62°, and a little beyond the red it will be 79°.

Some, among others Mellorie, have found the greatest heat in the yellow ray; but this seeming discrepancy is, in truth, none. An analysis of our sensations will show us that both red and yellow produce a sensation of warmth, the different states of our nerves corresponding to the difference in media through which the rays have been examined.

A scientific proof may be thus afforded,—a thing needed by many,—that our artistic notions are not founded upon the mere arbitrary whim of some leader among men, or upon the power of a majority to influence the education of impressions.

To this test must all our notions come. Will science substantiate them?

Even in this century of education and enlightenment there exist still a few whose rule of life is "I know what I like," and who look upon artistic laws and rules of art as creations of fanciful, and withal conceited and egotistic, brains, and who delight in having things done "my way."

From these emanate that Icelandic Tartarus, a blue drawing-room: in this refrigerator style a study may still be seen in Kensington; and the old blue drawing-room of Hampton Court may still, though but in pictures, freeze the spectator.

These matter-of-fact unsensitive men are, however, convincible by a thoroughly good scientific proof, and souls deaf to a discord and blind to the appeals of a sunbeam are still willing and able to stride up to, and knock till they are opened, the wide, willing doors of scientific research.

S. S.

THE PRINCE CONSORT'S STATUE FOR THE NATIONAL MEMORIAL.

SIR,—As the memorial in Hyde Park approaches completion, the guise in which we are to represent the figure of him to whom it is raised becomes a matter for serious consideration.

As no decision upon the subject has been arrived at, and no sculptor, so far as I am aware, been entrusted with the task of designing the statue of the Prince, I feel myself free to offer the following remarks upon the question, which have been suggested by the perusal of a brief pamphlet by Mr. Bell, of Kensington, who is now engaged upon one of the marble groups of sculpture to be placed at the base of the memorial, and an inspection of a model for a figure of the Prince designed by the same gentleman.

The central figure in the Hyde Park memorial whatever its design, must be viewed in two aspects, in relation to the Prince, as a good and fitting representation of him, and in relation to the edifice in which it is placed, as in harmony with the sentiment that pervades it, and in conformity with its leading architectural features. At the first blush only two attitudes of the figure suggest themselves as possible,—an erect and a sitting attitude. By the almost universal consent of all men whose opinions on the matter are worth listening to, the standing figure is deemed inadmissible,—not only because there would be a greater chance of failure in a standing than in a sitting figure, but also because the attitude would signify nothing in the Prince's bearing, person, or character, that a sitting posture would not signify equally well, while the latter would be more dignified than an erect attitude, and more in harmony with the style of building, the repose by which it is characterized, and the nature of the memorial.

But granting that of the two attitudes the sitting is preferable to the erect, yet, if we are desirous of something more than a mere facsimile effigy in marble, if we look for something that shall impress us with an idea, however feeble, of the virtue and goodness of the man whose virtue and goodness we would specially commemorate, will a sitting figure give us that something? I think not. Spiritualize the countenance as much as we will, we cannot, without the aid of some startling gesture, some striking facial expression (both in this instance inadmissible), cause a seated figure to represent anything more than a man seated. How is a figure in a sitting posture, whose features must evidence no strong emotion of the mind, but must, on the contrary, be cast in a mould of dignified and placid repose, to signify the possession of virtue or goodness in the man it represents, however correct it may be as a likeness? A man in the flesh cannot, by sitting in an attitude of dignified repose, impress a spectator with an adequate idea of his humility, his piety, his preference of virtue to vice, or his love of the fine arts, even when permitted a considerable play of the facial muscles; much less, then, a man in marble, who has no muscles to move.

And if a seated figure, such as I have described, would not satisfy us viewed as a representation of the good Prince whose memory we would perpetuate, neither, looking at it in relation to the edifice in which it is to be placed, would it fulfil the requirements, æsthetic and architectural, of the situation.

The general character of the memorial is ecclesiastical, or, more correctly perhaps, devotional. It points heavenwards; it is surmounted by the emblem of our faith: in the absence of the groups of sculpture symbolical of the four quarters of the globe and the various departments of art, science, and industry, we should not hesitate to pronounce it a funeral monument: as it is, we should prefer to call it a shrine. To accord, therefore, with the character of the edifice, the figure should be in some sort spiritualized. But how are we to spiritualize a sitting figure except by making an idol of it? Were we desirous of erecting an object of worship,—an idol,—we should fashion a seated figure, and raise a shrine over it. But while the memorial is designed to perpetuate the remembrance of the virtues of a good man, it is not raised to his glorification. The object we have in view is not to exalt the creature at the expense of God, but in all meekness and reverence to honour God through the creature.

Apart, however, from these considerations which probably will not have much weight with a numerous class of men who affect to despise what they would term the sentimental in sculpture, there is a serious architectural objection to a sitting figure. It would be too low. There would be so much space between the head of the figure and the canopy that the latter would be rendered unnecessarily heavy. It is true the figure might be elevated, but this could only be effected by raising the pedestal to a height out of proportion not only to the statue itself but also to the structure in which it is placed.

Again, in every building of a pyramidal form (and if we draw straight lines from the four corners of the base to the top of the cross, we shall enclose a pyramid) I believe it to be an admitted rule that all interior pyramids similarly formed by drawing lines from a conspicuous point in the central line or axis to other conspicuous points outside that line shall, if produced, have their bases either coincident with or wholly within the base of the exterior pyramid. Thus, taking the statue of the Prince as the most conspicuous object through which the central line or axis runs, if we draw straight lines from the head of the figure to the apex of each of the four secondary groups of sculpture immediately beneath it, and produce them in the same direction, they ought to fall within the area of the base of the exterior pyramid. With a standing figure they would fall within it, but with a sitting figure they would fall without it. If, therefore, the rule I have assumed to exist be good, a sitting figure is inadmissible, and I have shown that a standing figure would, for many reasons, be less satisfactory than a sitting figure; therefore, both attitudes, in my judgment, are excluded. What possible attitude then remains? I will leave Mr. Bell to tell us in his own words:—

> "In this country, which too frequently elects that its memorials should be prosaic, it may appear a bold proposition to suggest that the statue of the Prince should kneel; and possibly were he still in life, some objection might be raised to it; but now that his good and pure life lies before us complete, it appears the only attitude that can fully express the sentiment of religious duty that informed his actions."

In the model of the kneeling figure designed by Mr. Bell, the Prince is represented as a Christian knight clad in armour. The surcoat heads the Royal arms quartered with his own, and over all the mantle of a Knight of the Garter falls in graceful folds. The head is bare, and inclined slightly forward, and the hands are crossed over the breast grasping a sword on the blade, on which is engraven the Prince's motto, *Treu und fest*.

The artist, in a short printed description of the figure, says:—

> "The general form, as a mass, is symmetrical, and in all views the head is central; exactly so in the front and back views, and only slightly forward of the centre at the side views to the degree of inclination of the head, which I conceive is just. It is adapted to be looked at in all views, and from close beneath as well as from a distance."

The only question in my mind is whether viewed in front, even from a little distance, the figure would not have the appearance of being cut off at the knees, or just above them. Not to say that a captious critic would be apt to liken the figure to that of brave Widdrington, of whom we are told that when his legs were both cut off he fought upon his stumps, it must be remembered that where an unusual attitude is adopted, the eye or the mind does not in fancy supply what is not actually visible, but, on the contrary, rather notes its absence. The knees of a man who is kneeling attract our attention more than any other part of his person, because we do not often in private life see a man in such an attitude; not so, however, with the feet of one who stands or sits. In the case of a sitting figure the feet are frequently hidden by drapery; at any rate, when from the position of the statue they are not immediately visible, we mentally supply the omission. However, to carry out the argument to its logical conclusion, custom, or use, the continued presence of the kneeling figure would do away with the novelty, and so remedy the defect, if defect it be.

Considered in relation to the edifice a kneeling figure would in every way be more suitable than a sitting figure. It would, in the first place, stand higher, and so lessen the space between the head of the figure and the canopy,—no unimportant matter, as we have shown on architectural grounds. Then it would accord better with the general design of the memorial, and be in greater harmony with the sentiment of the whole composition. Not that on this account we anticipate a more favourable reception for the proposition from the non-artistic public, since as a nation we do not understand sentiment either in architecture or sculpture. We fall in love with something glaringly unreal, because it is pretty and catching, like Marochetti's *Cœur de Lion* in Old Palace Yard, or else we run mad after something positively ugly, because it is prosaically real like Magni's *Reading Girl*.

Were the present proposition carried into effect there would be plenty of people who would wish to be informed why the Prince should be represented as saying his prayers, or why so peace-loving a man should be clad in armour utterly ignoring the symbolism of the design, or really ignorant that the knight in armour kneeling, not necessarily in prayer, but in a devotional pose, is typical of the Christian who having fought the good fight against sin boldly and manfully before the world, kneels meekly and humbly before the God in whom he trusts to receive the reward of his piety and valour.

So much eulogy has been lavished upon the Prince, that many people are inclined now to run into the opposite extreme, and declare him to have been greatly overrated. They tell us that the high position he occupied placed him above the temptations to err which beset ordinary mortals, but forget that the very position which exempted him from some, exposed him to other and no less dangerous temptations. But he resisted them all. Instead of aspiring to the acquisition of political power, he was content to stand outside the arena of public life; and, although conscious that in genius and ability he need yield to none of the statesmen of the day, he never permitted himself to oppose, or even to interfere with, the counsels of the constitutional advisers of the sovereign. With every excuse afforded by the tradition of courts and the practice of princes for pursuing a contrary course, he led a pure, chaste, and blameless life, and, by his example and personal influence, materially aided the Queen in her determination to diffuse a more healthy atmosphere and a purer moral tone than had existed in previous reigns over those high circles of society of which she was the centre and their visible head. How effectual for good the personal influence of the Prince was, let the rapid deterioration in manners and morals among the upper classes since his death bear witness.

It cannot, therefore, be considered unfitting that a man who, resisting the temptations of the flesh and the world, practised an active Christianity in a situation where it is seldom more than professed, should be handed down to posterity in the National Memorial under the figure of a Christian knight. While, then, I agree with Mr. Bell, that his proposition is a novel one in the present state of art in this country, I cannot but commend his boldness in putting it forward. C. C.

COLUMBIA MARKET.

SIR,—I was induced by what I had read as to the beauty of the new market to go and see it on Saturday evening last. Curiosity, no doubt, had drawn a large number of persons there, mostly of the working classes, who perhaps intended also to obtain therefrom the Sunday's dinner. On entering, the first impression as to the general appearance was favourable, but disappointment as to the supply was soon felt. Mingling with the crowd, I could not help hearing frequent expressions such as "We can get better and cheaper at home." The butchers' shops, scattered on three sides, are not numerous, and the width of the colonnade is so narrow that the crowd made it anything but pleasant to stop to purchase. This of course will not always be so, though of a Saturday night inconvenience will be felt. One butcher's shop, which certainly had a very clean and respectable appearance, caused some jocose bantering,—the beautiful-looking legs of mutton hung all round the interior were *dummies!*—capital specimens of art!—but the good-tempered salesman outside met the jeers with which he was now and then assailed with astonishing equanimity as he endeavoured to obtain customers for his real provender. The best supply seemed to be in the vegetable market: good fresh broccoli were sold at from 2d. to 3d. each, and secured a large demand. The open space was occupied by the usual itinerant vendors of miscellaneous articles, shouting amid the occasional crack of the "shot for nuts," and making the place ring with the hubbub of a country fair.

The hall, grand as it may be in an architectural sense, has the appearance of a cathedral planted on one side. "What is the use of it?" some bystanders asked. Why spend so much

money on such an immense building, the interior of which is dwarfed by a few small shops cramped into the sides like so many portholes? The polished granite columns, no doubt, are the admiration of everybody, and the vast expanse above seemed to add to the solemnity which such a building usually creates; at least, there was a feeling that the edifice had something of a sacred character about it which the Gothic arches and their inscriptions tended to confirm. By the bye, why should the mottoes and inscriptions be carved in such letters as but few can read? Surely in a place intended for the education of the unlettered, the plainest type should be employed, and not such as at best of times are a puzzle and an enigma? Contrast, for instance, the inscriptions over the entrance of the outside of the hall with those of the Market-house inn by its side. Two figures are supporting the mottoes—

Be Sober	Be Pitiful
Be Vigilant	Be Courteous

in such letters that it is almost impossible to make them out. While I stood endeavouring to decipher them, two or three persons told me they had tried for several minutes to do so, but had failed. Now, having rubbed your eyes over this attempt, look on the left,—"The Market House: Combe & Co.'s Entire," in plain bold gilt letters that everybody can read. It is quite a relief. (The House, by the bye, was crammed with customers, who thus demonstrated that the market contained a stimulant!) It almost looked as if the advice to "be sober" was slinking out of sight in the presence of such company. Even the "Lodgings for a Single Man" chalked on one of the upper windows of the inn by a domestic painter was understood with greater ease than the Gothic hieroglyphics of the scientific carvers. When the romance of the illuminating lamps is worn off, and the centre gas lamp is duly lighted, in conjunction with the present good supply of gas in the shops, business no doubt will be carried on with spirit, and the inhabitants find it advantageous to make their marketing there; but people will not go from home and their own neighbourhood without the inducement of a large, cheap, and good supply, better, perhaps, than they can elsewhere obtain.

ONE OF THE PEOPLE.

THE NATIONAL ARMOURY IN THE TOWER.

FOR some years, persistently and alone, we have set forth the unsatisfactory, not to say disreputable, condition of the national armoury in the Tower of London, and have called for the appointment of a competent person to bring it into proper order, and to maintain it in a state of efficiency worthy of the country, and in which artists and the public are entitled to find it. It gives us great satisfaction to be able to announce a step forward in the direction we have pointed out. Mr. J. R. Planché, Somerset Herald, has been appointed by the Government to arrange the collection. An order has been sent to the Tower that he is to have all assistance necessary, and he has already made a preliminary survey previously to reporting to the Government what he considers should be done. At present nothing is fixed as to a permanent appointment, but the authorities having now had their attention fairly roused, will scarcely fail to recognise the necessity of this step. With Mr. Planché for superintendent, and a proper use of the funds which the sight-seeing public and art-loving students furnish, and will, of course, supply to a greater amount than ever, we might hope soon to have one of the finest collections of arms and armour in the world.

THE TRADES MOVEMENT.

Lancaster.—A notice recently given to their employers by the operative stonemasons of Lancaster, requiring a reduction in the hours of labour, has come into operation. An interview between the parties took place, the result of which was, that the masters refused to accede to the demands of the men. The building trade of Lancaster was never known to be in a more flourishing condition than it has been of late.

Leeds.—In connexion with the dispute in Leeds, it would seem that there is a very general feeling of antagonism amongst the plumbers to the proposals of the masters, and especially as regards the hour system. There is, however, no trade society in the town, and up to the present time no organized opposition has manifested itself. It is thought that they will be mainly influenced by the action taken by the masons and plasterers, and should these strike, or, as the men say, be locked out, the result will be, that building operations will be practically at a standstill.

York.—Apprehensions entertained that there would be a general strike among the operatives employed in the building trades here have not been realized; but although the masons as a body have resumed work, and stated that they are satisfied with the proposition of the employers to pay them 6½d. per hour in summer, and 7d. and 7½d. per hour in winter, which would raise the wages about 4d. per week in summer and 10d. per week in winter, amounting in the former period to 1*l.* 10s. 4d., and in the latter to 1*l.* 7s. 10d. The bricklayers, or at least those of them who were dissatisfied with 6½d. per hour in summer and 6¾d. per hour in winter, have not so readily made up their minds. They have held two meetings with closed doors, but it is believed that they have arrived at no definite result. A number of the bricklayers, however, have no connexion with any association.

Sheffield.—Some time ago notices were given to the operative carpenters and joiners of this town, that after the 1st of May, the employers intended to introduce the hour system. Several deputations from the employers and the operatives have since met. At the first interview the employers submitted a new code of working rules, but these were rejected by a general meeting of the men, and a modified code was prepared, and laid before the deputation. The men stated that they were only authorised by the constituents to ascertain the requirements of the masters, and to report the result to a general meeting. On behalf of the employers it was stated that they were prepared to submit the matter to arbitration. The deputation reported the result of their conference to a meeting of about four hundred operatives. It was affirmed that the employers were not at one as to the hour system, and it was contended that no sufficient reason had been advanced for disturbing existing arrangements. After an animated discussion, it was resolved to reject the hour system altogether. With respect to arbitration, it was contended that, unless the employers were united no permanent advantage could result from that course, as it was believed a majority of the masters look with little favour upon the proposed change, being generally satisfied with the existing system. A resolution was subsequently adopted, requesting the men in each shop to appoint deputations to wait upon their employers, and the meeting was adjourned.

Bradford.—There is every probability now of a lock-out in the building trade at Bradford, the operative stonemasons having refused to confirm the agreement which their deputation had come to with the deputation of their masters in so far as that agreement relates to payment by the hour and the employment of machine-worked stone; and the meeting of masters resolved to publish the whole of their correspondence, and to fall back upon their original notice, expiring on the 3rd of May, though still willing to refer the dispute to an arbitrator, and to abide by his decision. The lock-out has since taken place.

Miscellaneous.—There are partial strikes or lock-outs of masons at Bolton and Wolverhampton. The strike among the Hudderfield masons has been averted.

Darlington.—The wages question in the North of England iron trade has been under consideration by a Court of Conciliation and Arbitration, with Mr. Rupert Kettle as arbitrator. It is understood that a compromise had been offered on both sides, which has resulted in some advance of wages. The proceedings were private.

PROPOSED INQUIRY FOR IMPROVING THE INSTITUTE.

THE annual meeting on Monday night was pleased to grant me a special general meeting, at which to offer the proposal that a committee be appointed to inquire into the operations of the Institute generally, and to suggest measures for increasing its efficiency. Owing to want of time, all I was able to explain was that as the Institute has now existed for nearly forty years, without any considerable modification of its original system, it might be thought only reasonable to expect that various improvements, chiefly perhaps of detail, would, on inquiry, be found desirable, in order more completely to adapt its operations to the advanced and still rapidly advancing condition of professional affairs. I was very glad to find the proposition not only cheerfully entertained, but I may say universally and hopefully approved. What I beg you to permit me now to say is that I should be happy to receive from members and friends of the Institute, the profession, and the art, such opinions as they may think fit to entrust to me, in order that I may prepare myself to introduce the formal motion for the appointment of the committee with as wide a knowledge as possible of what is really floating in people's minds. With its large and influential membership, its high public character, and its established financial prosperity, I cannot help thinking the Institute of Architects might do a great deal of useful work; and any suggestions to this end, if addressed to me in writing, I shall be very glad to consider.

ROBERT KERR.

22, *Old Burlington-street.*

LAMBETH INFIRMARY COMPETITION.

WE understand that the Board of Guardians have adopted Mr. Hunt's award in the above, giving the first premium to Mr. Wilson, the second to Messrs. Stenning & Lepard, and the third to Messrs. R. E. Tyler & Chester Foulsham.

THE GREAT BELL OF MOSCOW; OR, TZAR KOLOKOL.

ACCORDING to the best authorities, the present "Tzar Kolokol," or King of Bells, was made in 1733–4, and subsequently suspended over the spot where it was cast, at no great height from the surface of the ground. It hung by immense beams and cross beams, and was covered by a wooden edifice, which having caught fire in 1737, the bell became hot, and doubtless was cracked in consequence of cold water being then thrown upon it in order to extinguish the fire.* It fell to the ground, and a large fragment about 6 ft. in height, was broken out of it. There it lay for many years; but in 1837 the Emperor Nicholas caused it to be removed, with the broken fragment, and placed upon a noble pedestal of granite, standing near to the tower of Ivan Veliki, where it is now to be seen, being surmounted by a ball and cross.

With respect to the dimensions and weight of this "mountain of metal"—which would make about a dozen "Big Bens,"—instead of filling several columns with the loose and conflicting statements of various writers, I will give an extract from Lyall's "Character of the Russians, and detailed History of Moscow." London, 1823:—

"The different methods employed in taking the admeasurements account in part for the variation of the statements of different authors."

* * *

"According *to the scale of the plate* and accompanying section, copied from those of the emperor, the diameter at the mouth of the great bell is 21 feet 8 inches; consequently its circumference must be 65 feet, or 21 yards and 2 feet; its height, not including the top, through which the beams pass for its suspension, is 17 feet."

Dr. Lyall also tells us that Mr. Murray, the engineer, examined the bell with the most scrupulous attention in 1817, by desire of Mr. Wilson, of Alexandrovskii; and that

"Mr. Wilson himself copied the inscriptions, which I have verified, and which, when compared with those on the same sheet with the drawing executed for the emperor, were found to correspond, notwithstanding that a few words on the bell were almost illegible."

The following are the inscriptions on the bell, as translated in the work above mentioned:—

"By order of the blessed and eternally worthy of memory Great Gosudar, Tsar, and Great Duke, Alexei Michaelovitch, Autocrat of all Great, Little, and White Russia, this great bell was cast, for the chief cathedral, dedicated to the honourable and famous Assumption of the most holy Mother of God, containing eight thousand poods of copper [and tin], in the year 7162 from the creation of the world, and from the birth by the flesh of God the Word 1654. It began to announce divine service in the year 7167 from the creation of the world, and in the year 1668 [should be 1659] from the birth of Christ, and continued to announce divine service till the year 7208 from the creation of the world, and till the year 1761 [1700] from the birth of Our Lord; in which year, on the 19th June, in consequence of a great fire which happened in the Kremle, it was damaged."

"Till the year 7239 from the beginning of the world, and the year 1731 from the birth into the world of Christ, it remained mute."

* Four of the peal of bells at Oundle Church were cracked under somewhat similar circumstances in August, 1868.

"By order of the most pious, most potent, and great Gosudarinya, the Empress Anna Ivannovna, Autocratess of All Russia, in glory of God, in the acknowledged Trinity, and in honour of the most holy Mother of God, this bell was cast for the chief cathedral of her famous assumption, from the eight thousand poods of copper [and tin] of the former bell that was destroyed by fire, with the addition of two thousand poods of copper [and tin], in the year 7242 from the creation of the world, and in the year of our Lord 1734, in the 4th year of her most prosperous reign."

* * * *

Dr. Lyall then goes on to say:—

"Contrary to the reports of innumerable writers, Russian, German, French, English, &c., that the great bell contains 12,000 poods, or 480,000 Russian pounds of copper [and tin], or a sum equal, nearly equal, or superior to that in German, French, or English weight, we have the most positive evidence from the second inscription that this *mountain of metal* only contains 10,000 poods, equal to 400,000 Russian pounds, or to 360,000 English pounds" [or, 160 tons 14 cwt. 1 qr. 4 lb.].

Before concluding, I should state that this monarch of bells was cast by Michael Monterine; and it has been so often misrepresented and caricatured in pictorial works, that I may add it is remarkable for beauty of form and just proportions.

The bell is also variously ornamented. On one side is represented the Tzar Alexei Michaelovitch, above him the Saviour; on the right of the Saviour the Virgin Mary, and on the left John the Baptist. On the other side of the bell is a figure of the Empress Anna Ivannovna in imperial robes, and a figure above it of the Saviour, with the Apostle St. Peter on the right, and the prophetess Ann on the left, besides numerous seraphims and other ornaments.

As I have said, the diameter at the mouth of the great bell, according to the scale of the plate in Lyall's work, is 21 ft. 8 in., its height being 17 ft. And it is worth noting, that this statement agrees with certain measurements of the bell made in 1868-9.

THOMAS WALESBY.

PATENTEES.

SIR,—I beg to suggest to the notice of yourself, and, with your permission and aid, to your readers, the advantages to be derived from a combination of patent and other mechanical appliances. Favourable and just to inventors as the security of patent-right is, it frequently occurs that the success of inventors is to give the public a multiplicity of useful articles applicable to one purpose, all of equal merit and service, whereby the most benefit is not given to the inventors or the public, as it would be were inventors to agree to supersede their individual patented articles by a combined invention, enjoying the several excellences of each patent.

The national and international exhibitions have most probably stimulated inventors to a great degree of merit; but in these days of close competition, and in some measure depression, our manufactures suffer. I beg to hope my hint may be of service in leading our patent inventors or others of merit to endeavour to excel even their own individual excellences by a combination of merit; as surely thereby will the certainty of success be theirs, and the most pleasure arise to the public, who have not always convenience or inclination to purchase every article they admire of a number of desirable articles of various recommendatory purports.

Against foreign competition excelling our inventive genius this unity would be a bar, and thereby our manufacturing interests be protected in whatever branch of art they are applied, as in iron, steel, and other metal workings; silk, flax, cotton, or other fabrics, &c.

As the origin of most patented articles or manufactures is from a consultation of artistic minds or a consideration of improvement of some already-introduced appliances, we have to suit a purpose, which inventors seek to render more serviceable to the public by some novel advantages, as the unity of patent excellences must tend at all times or ages to give most success and satisfaction to all concerned, and therefore is, I beg to consider, worthy the notice of the public.

UNITY WITH EXCELLENCE.

PROPOSED REGISTRATION OFFICE FOR WORKMEN.

SIR,—I quite concur with your recent correspondent, that there is great need for such an office as he suggests, which would give the opportunity to many men like myself of selling their ability in the best market, but who often now fail in the attempt for want of the first introduction. Likewise it would be the means of inspiring workmen to more energy to make themselves capable to be placed upon the books, with a better hope of a real chance than he has now under the present system of selection of foremen. Hoping I shall soon see such an establishment formed, which, if carried out as suggested, I have no doubt would work beneficially,—I am, &c.,

A JOURNEYMAN CARPENTER.

VERMILION.

As you have more than once published suggestions of mine respecting pigments, colour, and colouring, I venture to ask you to submit to the consideration of chemists and colour-makers what, I think, may prove a solution of the question why so few manufacturers (perhaps only one) can produce vermilion of the utmost splendour of which it (viz., sulphuret of mercury) is susceptible.

A friend of mine, a consulting commercial chemist, tells me that a manufacturer lately applied to him with a sample of his best vermilion, which, when seen alone, my friend pronounced "first-rate;" but when placed by the side of a sample from another maker it became "brick-dust" in comparison. My friend, the chemist, confessed himself non-plussed; and both he and his client came to the conclusion that the difference must be the result of some mystery of manipulation.

The suggestion I made seemed to me so obvious that I was surprised to find that the thought had never occurred to either party. I asked, "What sort of quicksilver do these vermilion-makers use?" The answer compels me to conclude that they use it "neat as imported;" if so, it is quite clear that they do not know what they use; they cannot tell what amount of lead (sulphuret of lead is as black as soot), zinc, tin, bismuth, &c., enters into a compound which (for the sake of colour) ought to contain no atom of anything but pure mercury and pure sulphur. To insure this purity as far as is possible, the mercury must be *distilled*, and the sulphur "*sublimed*" (volatilized) at the lowest available temperature. Moreover, I would venture to suggest that it might be possible and desirable to bring about the combination of the mercury with the sulphur whilst both are in a state of vapour.

J. H. M.

PROVINCIAL NEWS.

Cullercoats.—A new hotel is about to be erected at this marine village on the north-eastern coast. It will be in the centre of the bay, and have a fine sea view. Mr. Thomas Oliver is the architect.

STAINED GLASS.

Edenham Church, Bourn (Lincolnshire). — About eighteen months since three stained-glass windows were erected in the north aisle of this church, to the memory of the late Lord and Lady Willoughby de Eresby, by subscription of the tenantry and friends. Another window has just been erected as a memorial of a former incumbent and his daughter. It is a three-light window, with tracery of the Perpendicular period of architecture, and is the easternmost window of the south aisle. The subject represented is the Resurrection of our Lord, which extends over the three lower openings. The centre is occupied by Our Saviour rising from the Tomb; the angel, which is in the dexter opening, having rolled away the stone, is seated upon it in the act of adoration. In the sinister opening are shown the figures of Mary Magdalene, Joanna and Mary the Mother of Jesus. In the foreground are represented the Roman Guard, some asleep, others, in confusion and alarm, making their escape. A text is placed at the bottom of the window, "I am the resurrection and the life; he that believeth in me, though he were dead, yet shall he live." The group is surmounted by passion-flower enrichment. In the tracery are angels, &c. The windows were designed and executed by Messrs. Baillie & Mayer, of London.

Wellington Church.—A new memorial tower window has been put up in this church. The subject is the Birth of our Lord. The individual to whose memory it is dedicated by one of his surviving relatives, having in his lifetime adorned the eastern apse with a representation of the Crucifixion, it was thought that the western end would be most appropriately occupied with the corresponding design of the Nativity. The type of the edifice being of the character so commonly met with in the Georgian period of architecture, precluded a Gothic treatment of the incident; but the window being of a large space, good scope was afforded to the artist for pictorial effect. The main object in the group—the Infant Saviour—is represented lying in the manger with outstretched arms, symbolical of His embrace of the world. At His right side the Virgin Mother kneels in adoration, and at His left Joseph is seated. In the background, through the stable, are shown the distant country, the watching shepherds, and the angels announcing the glad tidings; and above the roof of the stable, a company of heavenly messengers bear a scroll with the sentence of rejoicing,—"Glory to God in the highest." Surrounding the scenery is a border of ornamentation, composed of the stem, leaf, and flower of the lily, upon a ground of deep ruby; the whole being inclosed by a mosaic framework. The work is seen with the disadvantage of a feeble light borrowed from the small window on the western side of the tower. The artists were the Messrs. O'Connor, of London.

Wakefield Parish Church.—The window in the tower of All Saints', Wakefield, has lately been filled with painted glass, in memory of the late Mr. Thomas Bolton, at the expense of his son, also lately deceased. It has been executed by Messrs. Hardmans, of Birmingham. The subject is the "Day of Judgment," and is divided into three portions: first, the coming of our Lord in glory attended by saints and angels; second, the dead summoned from their graves, and rising to meet Him; third, angels in heaven worshipping. The lower portion of the window represents the summoning of souls to judgment.

St. James's, Boroughbridge. — A memorial stained-glass window has been placed in this church. The design, which has been executed by Messrs. Hughes & Ward, of London, is founded on Simeon receiving the infant Saviour in the Temple.

CHURCH-BUILDING NEWS.

Arthuret (Cumberland).—The ancient church here has been renovated, chiefly at the cost of the Graham family. The edifice, both externally and internally, has undergone a thorough renewal, although its form, with one slight exception, is unaltered. The tower, except as regards the doorway in it, has not been touched, the principal portion of the external improvements having been made at the east end. Originally the roof of the chancel was flat, and somewhat lower than that of the nave. It has now been raised so that the whole of the roof from the tower to the end of the chancel is of the same height. The old east window has been restored, and the gable surmounted by a cross. The other external alterations require little notice, being merely renovations of the old walls. In the interior, however, everything is changed, the whole of the arrangements having been altered. The old flat plaster ceiling has been removed from the roof, and succeeded by an open roof of oak. The floor, except in the centre aisle, has been boarded. The pillars and arches, which were previously covered with plaster, have been stripped of their covering and cleaned. In order to increase the number of sittings, the centre aisle has been made narrower by elongating the seats, which have been converted from square pews into open benches. The western and chief doorway has been enlarged. On the north side of the chancel a Gothic oak screen has been erected in front of the pews appropriated to the use of the Graham family. On the south side is a small vestry. The chief feature of the chancel, and, indeed, of the church, is the window erected in memory of Sir James Graham. It is 18 ft. in height, and 14 ft. in breadth. It contains six lights, all filled with stained glass. In the lower panels are representations of the twelve apostles, accompanied by the different symbols which distinguish them. Above the apostles, six other panels are filled with figures of angels, each carrying in her hand a harp or trumpet. Above these, again, the interstices caused by the transverse shafts of the window are filled up with the symbols of the four evangelists; and the whole is surmounted by an argent dove with outstretched wings, in a circular panel. The border round the figures is of a floral design, coloured with a deeper tint than the figures. The building has been renovated under the superintendence of Mr. D. Birkett, of Carlisle, architect, the window being from the establishment of Messrs. John Scott & Son, of Carlisle.

Ewhurst.—The parish church has been for the last few weeks in the hands of Mr. Wm. Vaughan, of Maidstone, builder, who has undertaken the contract for its restoration, and is proceeding with it, under the direction of Mr. Robert Wheeler, of Tunbridge Wells, architect. The building has for many years been in a very dilapidated state, and at last was considered almost dangerous.

Hailey.—The village church of Hailey, which has been entirely rebuilt, has now been consecrated. The new church stands in a portion of the field in front of the vicarage, one side of the churchyard adjoining the road through the village. The style is of the thirteenth century. Hailey-stone facings are used both inside and out. The roof is of Baltic timber, unstained and unvarnished. Milton freestone is used both inside and out. The whole of the church is laid with tiling, and the arrangement of the edifice provides a heating-vault, chancel (with accommodation and fitting for a surpliced choir), nave, south porch, north aisle, and vestry at the west end of the aisle. The church is seated throughout with rush-bottom chairs, with a kneeler to each chair, and will accommodate about 240, including the choir. A dwarf stone wall separates the chancel from the nave. The altar, of English oak, is approached by a flight of seven steps. It is symbolically framed in English oak, and the slab is incised with five crosses. The reredos is built into the east wall of the chancel, and contains a super-altar of red Mansfield stone. The upper portion of the reredos is divided into three com-

partments containing frescoes of the Three Persons of the Trinity. The three-light east window has been filled with stained glass to the memory of the Rev. J. Hyde, a former vicar of Hailey. The principal feature of the centre light is the Crucifixion, and those in the side lights are the figures of our Saviour as the Good Shepherd, and as celebrant instituting the Eucharist. The sides of the east wall at the reredos are lined with encaustic tiles. The side lights of the chancel are partially filled with stained glass. No clerk of works has been employed. The builder was Mr. A. Groves, and the architect Mr. Clapton C. Rolfe. The total cost of the building is about 2,000*l*.

Miscellanea.

Professor Huxley on Physical Science in Education.—At a recent annual dinner of the Liverpool Philomathic Society, Professor Huxley spoke on the subject of the introduction of scientific training into the general education of the country. Upon no subject has the public mind been more educated, he was happy to say, than upon this particular topic of the introduction of science into education; and physical science was already recognised as a part of the curriculum at Harrow and Rugby, and some of our great schools, while ample preparations were being made for its introduction at Eton and elsewhere. He would ask any one present who had chanced to take the profession of an engineer how much time he had lost because when he had left school he had had to take to pursuits which were absolutely novel and strange to him. In the interests of mankind and of fair play, why would not the clergy get some little tincture of physical science, and put themselves into a position to understand the difficulties which were forced upon the mind of every thoughtful and intelligent man? The professor, in concluding, said he hoped the time would come when it would not be regarded as a blasphemous proposition that there should be opened in every parish in this country Sunday schools for science. That might be supplemented by a series of Sunday evening discourses upon secular matters, and upon topics which would enlighten them, and enable them to bear better the toil of daily life.

The National Education League.—This League has been started in Birmingham, with the concurrence of educational reformers in various parts of the country, and has already made rapid progress. The object of the League is to establish a system which shall secure the education of every child in England and Wales. The means by which this object is to be attained are stated in a circular issued by the provisional committee of the League. When a sufficient number of persons have joined, it is proposed to call a general meeting in Birmingham, to nominate a governing council, and to form branches throughout the kingdom. The general meeting will probably be held early in the autumn; and in the mean time communications may be made to Mr. George Dixon, M.P., Broad-street, Birmingham, chairman of the provisional committee. The members already include several hundred gentlemen known as promoters of education, and fresh accessions are being daily received. The names of twenty members of the House of Commons are already upon the list, and we observe those of Mr. T. Hughes and Mr. Mundella among them.

The late Mr. Frederick Hering, Architect.—We mention with great regret the decease of this gentleman, which took place at his residence in Argyll-street, Regent-street, on the 2nd inst. Mr. Hering, who belonged to a family of artists, was an accomplished and amiable man, but seems to have obtained few opportunities to distinguish himself in his profession. The elaborate shop-front at the corner of the Quadrant and Regent's-circus, which he designed for Messrs. Swan & Edgar, some years ago, was described in our pages at the time. Mr. Hering was in his 70th year when he died.

A New Exhibition.—So large a number of pictures have been rejected by the Academy on the present occasion, many of them admittedly excellent, that a committee has been formed to arrange, if practicable, a supplementary exhibition. Whether they will succeed in their endeavours is not yet quite certain.

Clubhouse in Birmingham.—The first building erected in this town solely for the purposes of a clubhouse has been opened. The edifice is at the top of Newhall-street, in the centre and the highest part of the town; it is within a few yards of the Bank of England and all the other banking houses. The style of architecture is Italian, with elaborate detail and carving. The fronts are to two streets, are two stories in height, and are of stone, from the Pillough quarries, Derbyshire, with a balustrade protecting the basement area; the ground-floor is rusticated, and has square-headed windows, with boldly-carved keystones and recessed pilasters in the reveals. The entrance, which is in Colemore-row, opposite to Bennett's-hill, has four massive columns with rich Corinthian capitals; the first-floor windows have balconies in front; the windows are circular-headed, with pilasters, consoles, cornices, and pediments, with carved keystones to the arches, spandrels, and other parts; these are of varied design, the triple windows being still further enriched, to make them as salient points in the elevation; above them is a carved frieze of foliage with shields, charged with armorial bearings, including that of Mr. Colemore, of Cheltenham, who is the ground landlord. The cornicione surmounts the frieze, and the whole structure is finished with a balustrade and pedestals bearing vases. On the ground-floor there is an entrance-hall leading to a corridor, out of which open a dining-room 41 ft. by 24 ft.; the morning-room, 60 ft. by 24 ft.; luncheon-room, &c.; the two first-named rooms have richly panelled ceilings and details in character with the principal part of the work. The great staircase is divided into three compartments by stone columns, and lighted by triplet windows of large size. The first-floor, which has a corridor extending the whole length of the building, leads to a drawing-room, library, billiard-room, &c. The cost is about 16,000*l*. The architect is Mr. Yeoville Thomason, of Birmingham.

Northern Architectural Association.—At the quarterly meeting of this association, held under the presidency of Mr. Watson, the committee which had been named to report on the articles of association of the Glasgow Institute of Architects, expressed their opinion that however useful the same might prove to their Scottish brethren, they would not materially improve the condition of that association; besides, a large expense would be incurred by the adoption of the Act. The committee recommended that the members of the Northern Architectural Association should not apply for incorporation. Mr. Charlton moved that the report should be adopted, which was seconded and carried. With regard to the Architectural Alliance letter, on the scheme for the education of pupils, the committee were of opinion that it would be desirable, before sending answers to the various questions proposed, that the association should consider the same *seriatim*, and that a statement should be forwarded by the secretary. The report was received, and the discussion was adjourned.

Civil and Mechanical Engineers' Society.—The gentlemen of this association made their second visit to works this session on Saturday last, when they visited the new Blackfriars Bridge, which is shortly to be opened for public traffic, permission being granted to them by Mr. Cubitt, the engineer. Mr. F. W. Bryant, the resident engineer, escorted the members over the works. Afterwards the society's members inspected the Blackfriars section of the Thames Embankment, by permission of Mr. Bazalgette. This Saturday the members, by permission of the architect, will visit the new Royal Italian Opera now being built in the Haymarket.

The Munich International Exhibition. Endeavours are being made to obtain from England architectural designs, models, and appliances; but it is to be feared almost too late, as the exhibition is to open at the beginning of July next. The special committee for this department consists of Messrs. R. Gottgetreu, k. Professor; Hügel, Baurath; E. Lange, k. Professor; G. F. Seidel, k. Baubeamter; and Zenetti, Stadt-Baurath.

Concrete Buildings.—Mr. D. Osborn, of Great Berkhamstead, has erected several Portland cement concrete buildings in that locality. At Rickmansworth Lord Ebury has employed Mr. Osborn to erect buildings with this material.

New Lunatic Asylum for Lancashire.—At Preston a special meeting of the magistrates of Lancashire has been held to consider the propriety of erecting another lunatic asylum for the county. It was stated that authority had been obtained by the General Finance Committee to purchase a site in Whittingham, near Preston, and that one of the instructions of the committee was that the asylum should accommodate 1,000 patients. The cost would be 20,000*l*. It was resolved that a committee be appointed to provide an additional asylum, and that 20,000*l*. be borrowed on the county rates for the purpose.

Progress of Invention.—It appears from a Parliamentary return that 3,991 patents were applied for in 1868, and up to the 11th of March last 1,715 of the applications had been granted. The total number for 1868 cannot be known until the 30th of June, owing to the six months allowed patentees (from the dates of their several applications) in which to have their patents sealed and to file their final specifications. The return shows the progress of invention. It begins with 1650, when no patent was granted. Just a century later, in 1750, there were only 7; in 1850 there were 523; and in 1867, 2,292.

The Fine Art Copyright Consolidation and Amendment Bill.—On the motion of Lord Westbury in the House of Lords, this Bill has been read a second time and referred to a select committee. His lordship pointed out that while there was protection for the author's life and 25 years afterwards in Spain; 30 years afterwards in Germany; and 50 years afterwards in France; protection was only accorded in England for 28 years altogether in one class of artistic works, and for 7 years altogether in another class. The new Bill granted protection for the author's life and 30 years afterwards, with certain exceptions. The Earl of Kimberley appeared to think that, as one of the public, he had a right to reap the fruits of an artist's brains, after his death at all events, if not before; although his lordship certainly could not lay hold of the *pecuniary* fruits of their industry or talent in a similar way.

Science and Art Classes for Ely and Cambridge.—A movement is in progress for the establishment of classes in elementary science and drawing at Ely, in connexion with the Science and Art Department at South Kensington. Some time ago it was proposed to establish similar classes in Cambridge. The project fell through; but it is possible a fresh attempt will be made under more favourable circumstances to bring this really important subject before the attention of the University and town. Professor Kingsley, in his address to the Cambridge School of Art at the late distribution of prizes, pointedly referred to the matter, and the archdeacon of Ely, and others then present, suggested that the new classes proposed might be carried on in connexion with the Cambridge School of Art.

Printers' Almshouses.—We understand that the required sum for erecting the celebration wing to these almshouses has been received or promised, with the exception of about 200*l*. It is to be hoped that this comparatively small amount will soon be subscribed, and promises realised, to enable the council to appoint a building committee to carry out immediately this much-desired object. Subscriptions are received by the treasurer, Mr. W. Clowes, Duke-street, Stamford-street; or by the collector, Mr. C. Pope, 14, Derby-street, Argyle-square, W.C.

University of Glasgow.—Session 1868-9. Certificates of proficiency in engineering science (Mr. Macquorn Rankine, professor) have been granted to Messrs. Anthony S. Bower, C.E., St. Neots, Hunts; Walter Deed, C.E., Colchester; James J. Galloway, C.E., Paisley; James Gillespie, jun., C.E., Garnkirk; Alexander Malcolm, C.E., Balfron; Robert McHaffie Mellis, jun., C.E., Glasgow; George D. Neill, C.E., Greenock; and John Russell, C.E., Glasgow.

Fever.—Amongst the Liverpool detectives fever seems to prevail. Two of them have died of it on one and the same day, and at that time two or three others were prostrated by it.—— At Tickhill, Doncaster, fever is prevalent in an epidemic form. The Doncaster Board of Guardians have had a discussion on the subject, and have written to the local authorities at Tickhill drawing their serious attention to it. In course of the discussion it was stated that defective drainage and contamination of wells were the cause.

The Drainage of Frankfort-on-the-Maine.—Mr. Gordon, late surveyor of Carlisle, who a few years ago left Carlisle for Frankfort-on-the-Maine, having been appointed principal resident engineer to the Board of Works at that place, is at present engaged in carrying out an extensive system of sewerage in that town. The editor of the *Carlisle Journal* has obtained an estimate of the work and the cost of it, from which he gathers that the total length of new sewers is nearly fifty-six English miles, and is estimated to cost 282,108*l*. The secondary division comprises extensions or additions, and improvements to existing sewerage works, and the length is fourteen English miles and a half, and will cost according to estimate 49,103*l*. The grand total length of the whole sewerage is about seventy miles, and will cost, on the whole, 331,211*l*. Mr. Gordon has been invited by Prince Ludwig to visit Darmstadt, for the purpose of inspecting the drainage of the palace, with a view to advising as to its improvement.

A Weekly Return of Work in Birmingham.—A week's work in Birmingham in its aggregate results is something wonderful. According to the *Engineer*, it comprises the fabrication of fourteen millions of pens, six thousand bedsteads, seven thousand guns, three hundred millions of cut nails, one hundred millions of buttons, one thousand saddles, five millions of copper or bronze coins, twenty thousand pairs of spectacles, six tons of papier-mâché ware, 30,000*l*. worth of jewelry, four thousand miles of iron and steel wire, ten tons of pins, five tons of hairpins, hooks and eyes, and eyelets, one hundred and thirty thousand gross of wood screws, five hundred tons of nuts, screw-bolts, spikes, and rivets, fifty tons of wrought-iron hinges, three hundred and fifty miles length of wax for vestas, forty tons of refined metal, forty tons of German silver, one thousand dozens of fenders, three thousand five hundred bellows, a thousand roasting jacks, one hundred and fifty sewing-machines, eight hundred tons of brass and copper wares, besides an almost endless multitude of miscellaneous articles, of which no statistics can be given, but which like those enumerated, find employment for hundreds and thousands of busy hands, and are destined to supply the manifold wants of humanity from China to Peru.

Accidents.—The new church in the course of erection on Southernhay, Exeter, belonging to the Independents, has been destroyed by fire. The building was nearly finished, and while the men were engaged varnishing the roof, flames burst from it at the west end, near the tower. The fire rapidly extended to the other end of the roof which became one mass of flames. The roof fell in, and the woodwork inside, including the large galleries, was speedily burnt up. Three of the city engines were at work, and by their efforts some of the glass work and the walls were saved.——An excavator was engaged in digging a foundation at the back of the Mare-street Baptist Chapel, Hackney, and had got to the depth of 12 ft., when one of the sides fell in, and he was buried under several tons of earth. When extricated he was found to be dead.——While a number of workmen were engaged in removing some old cottages, in order to make room for the enlargement of the foundry of Mr. Asa Lees, Huddersfield-road, Oldham, one of the inside walls fell down, and buried beneath it a labourer engaged in the work. He was killed at once.

Telegraphic Communication in the Bristol Royal Infirmary.—Mr. Grafton, C.E., of London, is now erecting in the Bristol Infirmary a mechanical telegraph to communicate orders to all the wards in that institution. The point from which the communication is to be made, says the local *Times*, is from the porter's lodge, on the ground floor, where there is affixed a large dial, on which there are twenty points, traversed by a hand. At each of these points will be placed a word, such as "casualty," "meals," "visitors out," "house-surgeon," "matron," &c., so that, by turning the wooden hand to any of these points, a similar hand will indicate the same thing on a similar dial in each of the wards. This will prevent the running about from ward to ward to look for a person, or give any summons which is necessary. The expense (which will be about 250*l*.) will be paid by an anonymous friend of the infirmary.

Works of Living Artists in France.—The exhibition of the works of living artists was opened in Paris on the 1st of May. The *habitués* consider it scarcely up to the mark.

Bursting of a Reservoir.—At the Bannister Hall Print Works, Higher Walton, a village a few miles from Preston, there are two extensive reservoirs in connexion with the works, one of them a very large one, covering nearly two acres of land, which was used for clean water purposes. At the time of the accident it contained a depth of 18 ft. of water. Between twelve at night and three in the morning this immense sheet of water burst through its banks into the river Darwen, near which it was situated. The reservoir had been filled too full the previous day, and water having filtered into rat-holes that lined its banks, worked its way through until a continuous opening had been made, and the banks being only composed of clay, a large gap was soon opened, and the water rushed out into the Darwen with immense velocity, carrying all before it. In a very short time the reservoir was quite empty. The fissure is twenty yards wide by over six yards deep.

Fire at Albury Park. — The Duke of Northumberland's mansion at Albury Park has been on fire. The intimation of the fire reached the duke and duchess at Northumberland House. Through the carelessness, it is said, of workmen employed at Albury, a candle had been left burning, and the flame communicated with some part of the building. Fortunately the fire was discovered before it had gained much hold, and a great destruction of property was avoided. The fire occurred in a part of the building remotely connected with the valuable and extensive library formed by the Duchess of Northumberland's father, and with the principal apartments, which are adorned with some of the rarest specimens of the ancient masters. When the duke and duchess, with Earl Percy arrived, the fire was under the entire control of the engines from Guildford. The damage is trifling, and is covered by insurance. Within a few hours of the extinction of the fire, a second outbreak of a more serious character took place in another part of the mansion, which looks suspicious.

Improvements in Mummification.—An odd discovery has just been made by a man of Grenoble, by which it is calculated that cemeteries and graveyards will become superfluous. At the decease of an individual the body is plunged into a liquid invented by the man of Grenoble, and in about five years the individual is turned into stone. The secret of the petrifaction is known only to the discoverer. He says that in a thousand years' time, if persons will only preserve their relatives and friends, they will be able to build houses with them, and thus live in residences surrounded by their ancestors! Altogether an absurdity.

Designs for Channel Steamers.—The Council of the Society of Arts offer the Gold Medal of the Society, and the large Silver Medal of the Society, for the best and the second-best block model of a steamer, which shall afford the most convenient shelter and accommodation to passengers on the deck of the vessels crossing the Channel between France and England.

Architectural Alliance. — The annual meeting of this association is to be held in London on the 12th inst.

Ruled Paper.—Messrs. Letts & Co. prepare paper ruled (in pencil-ink) in squares by gradation of $\frac{1}{4}$ in. from $\frac{1}{8}$ to the full. On paper thus prepared rough plans can be drawn and coloured in without the ruled line showing objectionably.

City Memorial of the Prince Consort.—At the last Court of Common Council it was resolved to place a stained-glass memorial window at the western end of the Guildhall, to the memory of Prince Albert. There is also reason to believe that a statue, the gift of a private individual, will be erected.

Fine Arts Copyright.—The Select Committee on the Fine Arts Copyright Consolidation and Amendment (No. 2) Bill consists of the Lord Privy Seal, Earls Stanhope, Carnarvon, and Somers, Viscount Hardinge, the Bishop of Oxford, Lords Portman, Overstone, Lyveden, Westbury, Houghton, and Romilly.

TENDERS.

For erecting a billiard-room over the present skittle-ground, at the Prince of Orange, Greenwich, exclusive of gasfittings, for Mr. Chas. Wall. Mr. Henry Roberts, architect. Quantities supplied:—

Disney	£525 0 0
Fenn	402 0 0

For the erection of a warehouse, in the Minories, for Messrs. Carter. Mr. G. Barnes Williams, architect:—

Thompson	£4,140 0 0
Hill, Keddell, & Co.	3,581 0 0
King & Sons	3,460 0 0
Ashby & Sons	3,290 0 0
Brass	3,270 0 0
Ashby & Horner	3,060 0 0

For iron and glass roof over seed market of the London Corn Exchange, Mark-lane. Mr. G. Barnes Williams, architect:—

Messrs. Phillips	£980 0 0

For the erection of shops and premises at Peckham. Mr. H. G. Haywood, architect:—

Ennor	£2,097 0 0
Beeton	2,000 0 0
Hill & Keddell	1,998 0 0
Colls & Son	1,978 0 0
Gammon	1,951 0 0
King & Sons	1,940 0 0
Tully	1,875 0 0

For the erection of three warehouses, at Wells-street, Oxford-street. Mr. J. Deason, architect:—

Bowman	£4,270 0 0
Foster	4,050 0 0
Hyde	3,900 0 0
Higgs	3,784 0 0
King & Sons	3,760 0 0
Scrivener & White	3,753 0 0
Cooper & Cullum	3,470 0 0

For the erection of stabling, at Tangley Park, Worplesdon, Surrey, for Mr. Thos. Oborn. Mr. Henry Peak, architect:—

T. & J. Loe (accepted)	£341 0 0

For the erection of a pair of cottages on the Woodbridge-road Estate (exclusive of plumber's, glazier's, and painter's works), for Mr. Higlett. Mr. H. Peak, architect:—

Stradwick	£322 0 0
West	320 0 0
Garnett	295 0 0
Taylor & Downes	290 0 0
Swayne & Sons (accepted)	257 10 0

For new school-room and alteration of present school-rooms, Belmont-street, Brighton. Mr. Thos. Simpson, architect. Quantities supplied:—

Patching & Son	£890 0 0
Dean & Dickerson	880 0 0
Cheesman & Co.	860 0 0
Baker	835 0 0
Lockyer	832 0 0
Sawyer	793 0 0
Nash & Co.	783 0 0
Barnes	740 0 0

For Little Park House, near Newbury, Berks. Quantities supplied by Messrs. Pain & Clark:—

	House.	Stable.
Henshaw	£5,738 0 0	£724 0 0
Manley & Rogers	4,797 0 0	693 0 0
Bracher & Son	4,803 0 0	676 0 0
Ebbs & Sons	4,810 0 0	647 0 0
Bull & Sons*	4,400 0 0	597 0 0

* Accepted.

For alterations at Fairlawn, Acton. Quantities supplied by Messrs. Pain & Clark:—

Little	£1,610 0 0
Bracher & Son	1,300 0 0
Tully	1,295 0 0
Ebbs & Son	1,247 0 0
Cook & Green	1,054 0 0
Manley & Rogers	1,045 0 0

For building stables, coach-houses, &c., in Blackman-street, Borough, for Messrs. Hadley. Mr. Josiah Houle, architect:—

Little	£4,199 0 0
Patman & Fotheringham	4,185 0 0
Mansfield & Price	4,184 0 0
I'Anson	4,126 0 0
Macey	4,088 0 0
Scrivener & White	3,997 0 0
Ennor	3,666 0 0
Langmead & Way	3,640 0 0

For alterations to the White Horse publichouse, 100, High Holborn, for Mr. S. Mead. Mr. F. Cadogan, architect:—

Sykes	£215 0 0
Goodwin	157 0 0
Blackmoor & Co.	145 0 0

For the erection of a new foundry, for Messrs. J. & F. Howard, Britannia Ironworks, Bedford. Mr. John Usher, architect. Quantities supplied:—

Corby & Son	£5,071 0 0
Smith	4,787 7 6
Field	4,759 0 0
Dickens	4,650 0 0
Young	4,647 0 0
Nightingale	4,567 0 0
Claridge	4,560 0 0
Moore	4,525 10 0
Cunvin	4,439 0 0
Winn & Foster (accepted)	4,211 0 0
Loveday (too late)	3,984 0 0

For the erection of four houses and shops, in Belsize-road, Kilburn, for Mr. J. Bishop. Mr. Douglas, architect. No quantities:—

Hackworth	£2,790 0 0
Waters	2,670 0 0
Williams & Son	2,547 0 0
Ebbs & Sons	2,437 0 0

For the erection of schools, master's house, &c. at Lyon's Down, East Barnett. Mr. G. Barnes Williams, architect:—

Dove	£3,075 0 0
Scrivener & Stephenson	2,937 0 0
Turner	2,899 0 0
Saunders	2,753 0 0
Walton	2,609 0 0

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Author of Text Books of Physical Geography and Geology, &c.
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LEYTONSTONE ROAD, back of Plough and Harrow, near Stratford, Essex.—Clearance Sale.
MESSRS. BOOTH & CO. will SELL by AUCTION, at TWELVE for ONE o'clock, on MONDAY next, MAY 10th, about 150 lots of NEW and OLD BUILDING GOODS, MATERIALS, PLANT, &c. usual description, and miscellaneous articles; also two spring carts, sets of harness, and cob pony. View and catalogues morning of sale.—Auctioneer's Office, 495, Hackney-road, London.

ACTON, MIDDLESEX.—Valuable FREEHOLD RESIDENTIAL and BUILDING ESTATE.
MR. ROBINS has been favoured with directions from the Trustees under the will of the late Edward Buxton, Esq. to SELL by AUCTION, at the MART, in Tokenhouse-yard, E.C. on THURSDAY, MAY 20th, at TWO precisely, in Two Lots, the highly valuable and important FREEHOLD ESTATE, distinguished as Mill Hill Park, most conveniently situate within easy access of the Acton Station, on the North and South Western Junction Railway, whence frequent and direct communication with the City (viâ Broad-street) is obtained, being also about a mile from the Acton Station on the Great Western Railway, thus uniting the whole of the Metropolitan system. Omnibuses to the West-end of London run at frequent intervals. The estate comprises a gentleman's residence in the style of an Italian villa, containing ample accommodation for the reception of a family, surrounded by beautiful and extensive pleasure grounds, possessing every possible appurtenance of a country mansion, and standing in a finely timbered park skirted on the western extremity by ornamental fish ponds. The estate lies high, and the land is of an undulating character, with a deep gravel subsoil, comprising altogether 91a. 1r. 8p. It possesses a valuable frontage to the Avenue-road of 1,138 feet, and a similar frontage to Gunnersbury and Bollo-bridge-lanes of 795 feet. Approaches by good roads are secured on the eastern and southern boundaries, thus permitting a comprehensive building scheme to be developed, and a large extent of valuable frontage secured, without (if desired) interfering with the present house and grounds. Lot 1 will include the mansion and 13a. 3r. 1a. of land; Lot 2 consisting of 7a. 2r. 7p. has a large proportion of frontage, and presents an admirable site for the erection of a first-class residence.—The property may be viewed, by orders to be obtained of the Auctioneer. Full particulars, with plan, may be had at the principal Inns at Acton; of Messrs. SHEPHEARD & SON, Solicitors, 78, Coleman-street, E.C.; and 19, Lower Phillimore-place, Kensington, W.; at the Mart, E.C.; and of Mr. ROBINS, 5, Waterloo-place, Pall-mall, S.W. (Sale 13,497.)

UPPER NORWOOD.—Freehold Building Estate of 26 acres, with possession.
MR. PHILIP D. TUCKETT will SELL by AUCTION, at the MART, Tokenhouse-yard, E.C. on TUESDAY, JUNE 1st, at ONE, in 1 lot, by order of the Mortgagees, the DALE-PARK ESTATE: comprising a cottage and garden and 26 acres of very eligible building-land, having a long frontage to the high road, situate close to the Beulah Spa Hotel, and about one mile from the Gipsy-hill, Crystal Palace, Norwood Junction, and Thornton-heath Railway Stations. This favourite locality is now so nearly surrounded by buildings, that it cannot be doubted that this estate will be speedily covered with great profit to the builders.—Particulars of Messrs. LACE, BANNER, & CO. Solicitors, No. 1, Union-court, Liverpool; Messrs. EDWARDS & CO. 8, Delahay-street, Westminster; or, of Mr. PHILIP D. TUCKETT, Land Agent, Surveyor, &c. 10a, Old Broad-street, E.C.

FOREST-GATE, E.—Freehold Country Residence and Building Land, with early possession.
MR. PHILIP D. TUCKETT will SELL by AUCTION, at the MART, E.C. on TUESDAY, JUNE 1, at ONE, in two lots, the following very desirable and compact FREEHOLD PROPERTIES, viz.—Lot 1. An old-fashioned but commodious detached Residence, with gardens, vineries, coach-house, stabling, &c. in all about three-quarters of an acre, most conveniently situate almost close to Forest-gate Railway Station, whence frequent trains reach Bishopsgate in about seventeen minutes; let to Mr. Daniell, Solicitor, at a rent of 50l. for a term expiring at Christmas next. Lot 2. A Paddock, Orchard, and Garden adjoining Lot 1, and held therewith, but subject to one week's notice, occupying a prominent corner position, having 838 feet of frontage to two good public roads, and comprising 2a. 2r. 20p. of very valuable building land, the whole immediately available for the erection of moderate-sized villas, without any expenditure in new roads.—Particulars, with plans, of Messrs. YOUNG, JONES, ROBERTS, & HALE, Solicitors, 2, St. Mildred's-court, E.C.; or, with orders to view, of Mr. PHILIP D. TUCKETT, Land Agent, Surveyor, &c. 10a, Old Broad-street, E.C.

Absolute Sale of Plasterers' and Modeller's Stock and Utensils, Battersea, Surrey.
MR. CHARLES YOUNG will SELL by AUCTION, by order of the proprietor, Mr. F. Brown, on the PREMISES, 4, Collingwood-terrace, Plough-lane, Battersea, on WEDNESDAY, MAY 12th, 1869, at ONE o'clock, the extensive stock of PLASTER and CEMENT CASTINGS, comprising large quantity of centre flowers, cement and plaster trusses, enrichments, labels, consoles, Corinthian capitals, busts, brackets, vases, artificial stone sinks, moulds of every pattern and design, a quantity of scaffolding, and sundries, and numerous useful effects. On view day prior and morning of sale.—Catalogues on the Premises and of the Auctioneer, Meyrick-road, Battersea.
N.B.—Mr. Brown will reopen the Premises in the general Ironmongery.

KENTISH TOWN.—Stock in Trade of a Builder and Contractor.
MESSRS. BOND & SON are instructed by the Executors of Mr. Wm. Palmer, deceased, to SELL by AUCTION, on the PREMISES, Chalton, King's-road, Leighton-road, near the Brecknock, on THURSDAY and FRIDAY, 20th and 21st of MAY, at ELEVEN each day, the whole of the STOCK and EFFECTS, comprising well-seasoned timber, 20 joiners' benches, 2 mortising machines, pile-driving machine, a crane nearly new, Johnson's patent hoist, 3 crabs, 4 screw jacks, 8-horse power horizontal steam-engine, sawing benches, large grindstone, 3 powerful cart-horses, 2 vans, 2 timber carriages, brick and dobbin carts, thill and trace harness, scaffolding, blocks and falls, ladders, pestles, steps, barrows, useful ironmongery, about 2 tons of lead, ½ ton of nails, quantity of stone, chesnut mare, park phaeton and harness, dog cart, gig, 2 portable offices, office fittings, a dumpy level, and miscellaneous effects. May be viewed the day previous, and catalogues had on the Premises, and of the Auctioneers, 51 and 53, Seymour-street, Euston-square; and 219, Hampstead-road, N.W.

MAIDSTONE, KENT.
MESSRS. TOOTELL & SONS are instructed to SELL by AUCTION, at the Star Hotel, Maidstone, on WEDNESDAY, the 16th day of JUNE, 1869, at THREE o'clock precisely. That desirable FREEHOLD ESTATE, the remainder of the property of the late Mr. Hartnup, situate on the Tonbridge-road, about one mile from the town, comprising a convenient dwelling-house and farm buildings, a dwelling-house with grocer's shop and bakehouse, 12 cottages, and 48 acres of most desirable building and accommodation land, having large frontages to existing roads, and offering sites for the erection of first-class residences unequalled in the neighbourhood. The property will be divided into convenient lots of from 2 to 10 acres, and possession will be given at Michaelmas next. Particulars and conditions of sale, with plans, may shortly be had at the Auction Mart, Tokenhouse-yard, London; of Messrs. MONCKTON & SON, Solicitors, Maidstone; of Messrs. MONCKTON & MONCKTON, Solicitors, 1, Raymond-buildings, Gray's Inn, London; and of Messrs. TOOTELL & SONS, Maidstone.

TO BUILDERS AND OTHERS.—PEREMPTORY SALE, without reserve.—Stock of Paper Hangings, Pale Oak Varnish, White Lead, Sheet Glass, Dryers, and effects, King's-road, Chelsea.
MESSRS. KEMP have received instructions to remove and SELL by AUCTION, upon the PREMISES, adjoining the World's End, Cremorne, King's-road, Chelsea, on MONDAY next, 10th of MAY, at ONE o'clock. On view morning of Sale.—Auctioneer's Offices, 107, Asylum-road.

BLACKFRIARS BRIDGE.—Important sale of the first portion of the Plant and Machinery used in the construction of the bridge.
MR. C. J. BAKER has received instructions from Messrs. Thorn & Co. the contractors, to SELL by AUCTION, on the WORKS, at Blackfriars-bridge, on TUESDAY, the 1st of JUNE, the first portion of the PLANT and MACHINERY used in the construction of the new bridge; comprising 10 and 14 horse-power portable engines, 3 thirty-ton purchase crabs and blocks, pile engines, 100-ton hydraulic jacks, Woodford's pumps, several sets of Heinke's diving apparatus, 5 steam-travellers, 4 hand-travellers, Chaplin's steam cranes and hoists, 12 wrought-iron girders 70 feet span, a quantity of 18 inch deep girders, suitable for builders, a large quantity of timber, a 50-ton barge, 6 boats, ironwork, chains, blocks, tanks, and a variety of miscellaneous items.—The foregoing may be viewed by card at any time prior to the sale, and the machinery may now be seen at work. Catalogues may be had at the works, Blackfriars-bridge; and at the offices of the Auctioneer, 65, Great Russell-street, Bloomsbury, W.C.

BEXLEY-HEATH.—Valuable Freehold Building Land, beautifully situated on an eminence on the south side of Bexley-heath, commanding extensive and interesting views, one mile from the Railway Station.
MR. MARSH has received instructions to SELL by AUCTION, at the GUILDHALL COFFEEHOUSE, on THURSDAY, MAY 20, at TWELVE, in lots (unless the whole or a portion be previously disposed of by private contract), the REMAINING PLOTS of valuable FREEHOLD BUILDING LAND, situated on the south side of Bexley-heath, presenting eligible sites for the erection of villa residences. Free conveyances to purchasers will be given, and nine-tenths of the purchase money may remain, payable in nine years if desired.—Particulars of sale, with plans, may be obtained of Messrs. GORHAM & WARNER, Solicitors, Tunbridge; the Inns in the neighbourhood; and of Mr. MARSH, Auctioneer, Surveyor, and Land Agent, 54, Cannon-street, E.C.

BRICKMAKING PLANT, three superior pug-mills, moulding tables, steel brick moulds, quantity of brick boards, 35 dozen hack hurdles, poles, navvy crowding and bearing-off barrows, upwards of 850 feet run of iron wheeling planks, kiln bars and doors, tools, brick carts, market cart, thill and trace harness, &c. TO BE SOLD by AUCTION, at ONE o'clock, on the 11th inst. at WHITMORE FARM, Sunningdale, by
MR. JAMES WEEKES, Wokingham, from whom catalogues may be had post-free.

WIMBLEDON-PARK.—An exceedingly choice Freehold Building Site, in the best part of this delightful neighbourhood, containing 3 a. 2 r. 17 p. commanding uninterrupted views over a beautifully timbered country, including the noble lake in the centre of the park.
CHINNOCK, GALSWORTHY, & CHINNOCK will SELL by AUCTION, at the AUCTION MART, Tokenhouse-yard, City, on THURSDAY next, MAY 13th, at TWO o'clock precisely, the most beautiful of the few remaining BUILDING PLOTS in Wimbledon-park, occupying an elevated position, having a deep gravelly soil, and containing some of the finest points of view in this charming locality, which is so justly celebrated for its picturesque scenery, beautiful drives, salubrity of its atmosphere, and accessibility to town, &c.—Particulars may be obtained of Messrs. TILLEARD, SON, GODDEN, & HOLME, Solicitors, 34, Old Jewry, E.C.; and of Messrs. CHINNOCK & CO. Land Agents and Surveyors, 11, Waterloo-place, S.W.

WANDSWORTH-ROAD, near the Nag's Head and Clapham-common.—Six small Freehold Houses, a Beer-house, known as the Dun Cow; also nine Cottage Tenements, and a Plot of Building Land adjoining.
CHINNOCK, GALSWORTHY, & CHINNOCK will SELL by AUCTION, at the MART, Tokenhouse-yard, City, on THURSDAY next, MAY 13, at TWO precisely, in two lots, SIX FREEHOLD HOUSES, comprising Nos. 1 to 6, Medows-buildings, facing the Wandsworth-road, near the Nag's Head, a short distance from Clapham-common, close to the works of the L.C. and D.R.; also, adjoining, a Beer-house, known as the Dun Cow; nine Cottage Tenements in the rear, fronting St. Andrew's-street; and a Plot of Building Land, with a frontage of about 60 feet. A portion of the property is let on lease for 6¼ years unexpired, at a ground-rent of 24l.; the remainder for 4¼ years, at a ground-rent of 23l.—Particulars of Messrs. TOMPSON, PICKERING, & STYAN, Solicitors, 4, Stone-buildings, Lincoln's-inn; at the Mart; and of Messrs. CHINNOCK & CO. Land Agents, 11, Waterloo-place.

WANDSWORTH COMMON.—Four Plots of valuable Freehold Building Land, finely timbered, gently undulating, and containing about 1½ to 2 acres each.
CHINNOCK, GALSWORTHY, & CHINNOCK will SELL by AUCTION, at the MART, Tokenhouse-yard, City, on THURSDAY next, MAY 13th, at TWO o'clock precisely, FOUR important FREEHOLD BUILDING SITES, containing together about 7 acres, and occupying a most eligible position, overlooking Wandsworth-common, very near to Nightingale-lane, a short distance from Clapham-common and the Clapham Junction Railway Station, which gives direct access to every part of the metropolis, with a prospect of a new station on the Crystal Palace line close to the property. All the plots are gently undulating, and have splendid elm and lime trees growing thereon, with luxuriant shrubberies already formed, and afford eligible sites for the erection of first-class residences in this favourable locality, which, with its numerous lines of railway, is the most accessible suburb of London, and within an easy and pleasant drive of the City or West-end.—Particulars and conditions of sale may be obtained of HERBERT WALFORD, Esq. Solicitor, 27, Bolton-street, Piccadilly; at the Mart; and of Messrs. CHINNOCK & CO. Land Agents and Surveyors, 11, Waterloo-place, Pall-mall.

WOOD-GREEN.—Park Ridings Estate.—Eight eligible Plots of Freehold Building Land, situated a short distance from Alexandra Park and Wood-green Station, on the Great Northern Railway.
CHINNOCK, GALSWORTHY, & CHINNOCK will SELL by AUCTION, at the AUCTION MART, Tokenhouse-yard, City, on WEDNESDAY, JUNE 2, at TWO o'clock, in eight lots, a portion of the valuable FREEHOLD ESTATE known as Park Ridings, comprising eight plots of eligible building land, ripe for immediate operations, and admirably adapted for the erection of villa residences of a good class, which are in great demand in this favourite and highly-improving locality, so easily accessible to the City and all parts of London, by the Great Northern and Metropolitan Railways. All the lots have extensive frontages to the High London-road, with return frontages to other roads, laid out with a view of developing the property to the best advantage, and some of the plots offer a favourable opportunity for a profitable speculation, by building shops, a tavern, &c. The estate is only a few minutes walk from the Alexandra Palace and the Wood-green and Hornsey Stations.—Particulars and plans of Messrs. WINTER & COMPTON, Solicitors, 7, Parliament-street; J. C. LEE, Esq. Surveyor, 43, Craven-street, Strand; at the Mart; and of Messrs. CHINNOCK & CO. Land Agents and Surveyors, 11, Waterloo-place, Pall-mall.

CHELSEA.—Valuable Freehold Estate, comprising four capital houses and shops, facing the Thames, in Cheyne-walk; also two eligible plots of building land in the rear, extending to Oakley-street, and containing together about 1½ acre. By direction of Trustees.
CHINNOCK, GALSWORTHY, & CHINNOCK will SELL by AUCTION, at the MART, Tokenhouse-yard, on WEDNESDAY, JUNE 2nd, at TWO o'clock precisely, in four lots, an important FREEHOLD ESTATE, comprising four good, brick-built houses, with shops, being Nos. 35, 36, 37, and 38, Cheyne-walk, facing the river, close to Cadogan-pier and the proposed new bridge, and having a frontage of 88 feet 6 inches, with gardens and outbuildings in the rear; let to yearly tenants at old rentals, producing 175l. per annum, capable of immediate increase. Also, two eligible Plots of Building Land, extending 365 feet in the rear, having a frontage of 72 feet 6 inches to Oakley-street, and an entrance to Cheyne-walk, containing an area of about 5,000 square yards, presenting a favourable opportunity for a profitable building speculation or the creation of ground-rents; houses of a moderate class being in great demand in this highly-improving neighbourhood. It would also form a capital site for a large public institution or model dwellings.—Particulars may be obtained of Messrs. BELL, STEWARD, & LLOYD, Solicitors, 49, Lincoln's-inn-fields; at the Auction Mart; and of Messrs. CHINNOCK & CO. 11, Waterloo-place, Pall-mall.

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DRAUGHTSMAN WANTED, by the Preston Local Board of Health. Salary 180*l.* per annum. Testimonials (copies only), with specimen plan, to be sent, on or before the 11th of MAY next, to Mr. ARMYTAGE, Borough Surveyor, Preston, Lancashire.

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GILDERS, thoroughly experienced in House Work, Decorative Furniture, and Gilding in all its branches, may be OBTAINED at the House of Call, Marlborough Inn, Blenheim-steps, Oxford-street.—Address to the Secretary.

ROCHESTER HIGHWAY DISTRICT.—The Highway Board for the above district hereby give notice that at their Meeting to be held on the 11th day of MAY next, at the Bull Hotel, Rochester, they will proceed to the ELECTION of a SURVEYOR to their District. A practical knowledge of the management and repair of highways will be requisite. The District at present comprises 26 parishes, and contains about 220 miles of road. The yearly salary, including travelling and all other expenses, will be 130*l.* He will have to reside within the district. Satisfactory security will be required. Candidates must state their age, and forward testimonials as to character and ability, to Mr. CHARLES MARTIN, the Clerk to the Board, at his Office in Strood, on or before the 10th day of MAY next. Applications to be marked "District Surveyorship."—By order of the Board,
Strood, April 23, 1869. CHARLES MARTIN, Clerk.

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JOHN LUMBY, Clerk to the Guardians.

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